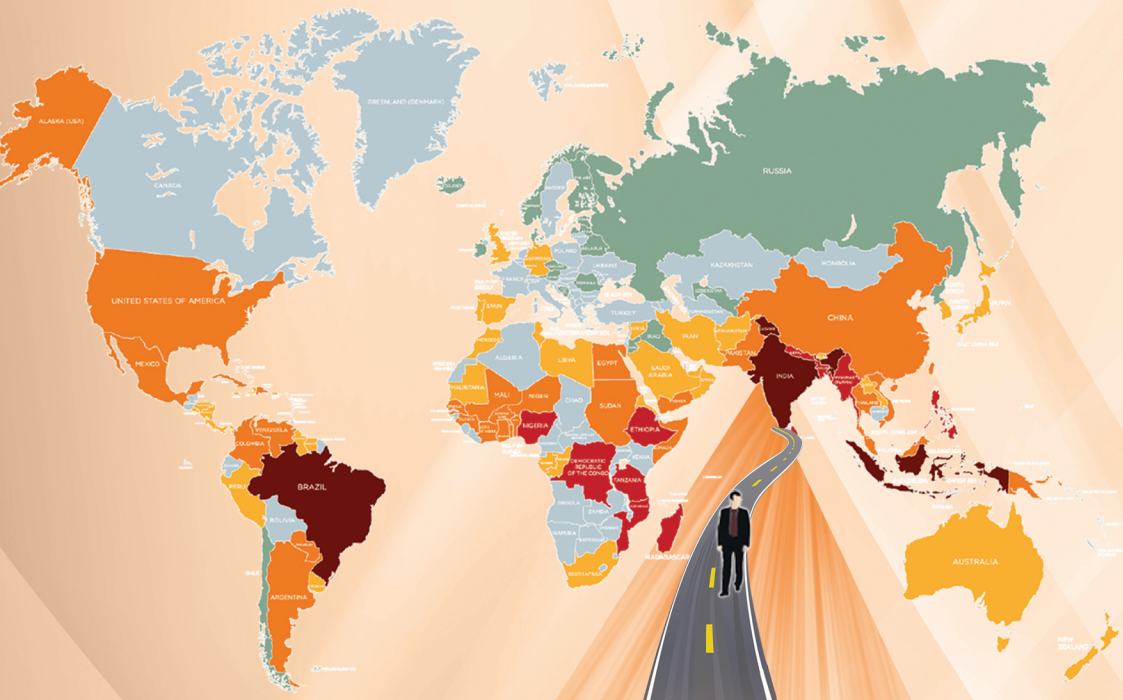
31st BIENNIAL CONFERENCE OF INDIAN ASSOCIATION OF LEPROLOGISTS (IAL)

Theme: Marching Towards Zero Leprosy in India

Alumni Educational Centre (AEC)

Gandhi Medical College & Hospital, Hyderabad, Telangana

16th to 18th April, 2021



ZERO LEPROSY

BOOK OF ABSTRACTS

INDIAN ASSOCIATION OF LEPROLOGISTS (IAL)

31st BIENNIAL CONFERENCE

Venue: ALUMNI EDUCATIONAL CENTRE (AEC)
Gandhi Medical College / Hospital
HYDERABAD, TELANGANA

Dates: **16th to 18th April, 2021**

THEME OF THE CONFERENCE:

MARCHING TOWARDS ZERO LEPROSY IN INDIA

WEB CONFERENCE

Friday, 16th April - 10.00 am to 6.00 pm

HYBRID CONFERENCE

Saturday, 17th April - 10.00 am to 6.00 pm
Sunday, 18th April - 9.00 am to 1.30 pm

WORKSHOP

Saturday, 16th April - 10 am to 1 pm

1. Skin smears
2. Leprosy Physiotherapy
3. Ultrasonography of Nerves in leprosy

IAL BUSINESS MEETINGS

On 17th April - 4 pm to 6 pm
On 18th April - 08.45 am to 9.45 am

IAL NATIONAL EXECUTIVE

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Dr. Rathindra Nath Dutta

Vice Presidents
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Dr. Mrudula Prakash Save

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Dr. Bhushan Kumar
Dr. HK Kar
Dr. TSS Lakshmi
Dr. KS Baghotia
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Dr. Narsimha Rao Netha, Chairperson
Dr. DBN Murthy, Chairperson
Dr. Sujai Suneetha, Scientific Secretary
Dr. K Bhumesh Kumar, Organising Secretary

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Dr. IS Reddy
Dr. S Aparna
Dr. Nayeem S Haneef
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Dr. K. Raghupathi Reddy

Members
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Dr. Sirisha Varala
Dr. Manogna Vallela
Dr. Rakesh Kumar
Dr. Sangeeth Kumar
Dr. Sruthi Kondaveeti
Dr. Alekya Singapore
Dr. Kranti Varma

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Presidential Address

PROF. RATHINDRA NATH DUTTA
President, IAL

Dignitaries on the dais, my respected delegates physically present and those who could not come but are with us via net link, I welcome you all to this auspicious occasion of our this 31st Biennial and the first Hybrid Conference of Indian Association of Leprologists in this Alumni Hall of Gandhi Medical College at Hyderabad

Leprosy, known as Hansen's Disease, is the oldest disease known to mankind. It is crippling not only physically but also mentally, socially and psychologically as well. It has been and often remains a cause of curse.

The current disease burden has come down significantly compared to a few generations ago. The number of cases has dwindled significantly. The global presence has come down with more than 90% since 1985, largely due to introduction of multidrug treatment. But, there are a great number of cases with grade – 2 disabilities. This of course is being addressed to the best of the ability of the forum concerned.

We are observing a very interesting finding i.e. cases of Hansen's are again increasing.

There is a revival of leprosy.

This may be due to the stagnation in the control of Hansen's disease, probably due to the loss of focus on the programme after achieving 'Elimination'. Quite a number of cases remain undetected, many are detected late after irreversible deformities appear.

WHO launched a "Global Leprosy Strategy 2016 – 2020" it is centered upon 3 pillars

1) Strengthening government ownership, coordination and partnerships.
2) Stop Leprosy and its complications, and
3) Stop discrimination and promote inclusion. This emphasizes the responsibilities of the government as well as partners the need to sustain expertise, involving persons and communities affected with leprosy and to prioritize the most vulnerable population.

We the IAL, as partners and frontline workers in fighting Leprosy, let us not forget our duty and relax as this disease is raising its ugly head.

The theme of this conference is “Marching towards Zero leprosy in India”

Along with this “zero leprosy”, which is a health aspect, we should also focus on the social aspect. We should help the people affected with leprosy, in fighting social discrimination and marginalization, try to take legal steps change discriminatory and outdated laws, find for them or create income generating vocational training and / or appropriate jobs so that they revive their lost confidence and self-respect due to them.

Let us utilize this conference in learning new techniques and update ourselves with both theoretical and also practical knowledge which we can use with other frontline workers of Leprosy.

As the present president of IAL this is the message I wish to convey to all from the core of my heart.

I would also request the next team of IAL to carry forward this task of reviving the social respect of affected people which is due to them.

Jai Hind.

Message from the Hon. Secretary, IAL

DR. MRUDULA PRAKASH SAVE
Hon. Secretary, IAL

I welcome all the delegates on behalf of 'The Indian Association of leprologists, (IAL). The 30th Biennial Conference of IAL, being held at 'The Gandhi Medical College', Hyderabad is a hybrid meeting, first of its kind in the history of IAL. This meeting is a part of a paradigm shift we all are experiencing in this pandemic situation. New norms are being set, people are coming closer and there is increased communication. Governments are more receptive and people are more supportive towards the health related issues. Let us all make the best of this positive approach of society towards the control and management of the disease called Leprosy.

Leprosy is associated with human society for millennia and in spite of effective chemotherapeutic cure in the form of MDT, the new case detection rate remains unaltered. Concerted efforts are therefore required;

A) To break the transmission chain of M. leprae; the causative organism of leprosy by 1) early detection and treatment of leprosy affected individuals and 2) prolonged bactericidal treatment of high BI and polar lepromatous leprosy cases and

B) Early detection and treatment for leprosy associated disabilities; via continued monitoring of nerve function during and after completion of anti-leprosy treatment

This combined approach will help to achieve the goal of zero leprosy and zero deformity in the years to come. I therefore appeal to all the members of the association to join hands with the governmental agencies in fight against this age old disease.

Involvement of skin and peripheral nerves and resulting sensory impairment; forms one of the cardinal sign in leprosy diagnosis, however the mechanisms underlying are poorly understood. The neuro-immunological, patho-physiological aspects of nerve function impairment and mechanism underlying the lepra reactions needs to be investigated. Pathways controlling the normal functioning of neural and immune response need to be understood with respect to leprosy. The deviation from the normal could result in aberrant immune response and the resulting lepra reactions. I therefore appeal the scientific fraternity involved in the field of leprosy to invest in basic research in leprosy and associated nerve damage. I also request the medical colleges and the academia to encourage their students to take up their research projects or dissertations on leprosy.

Let us come together and work towards a world free of leprosy and the associated discrimination.

Message from Organizing Chairpersons

On behalf of organizing committee, It gives us immense pleasure to welcome you all to the 31st Biennial conference of IAL at Gandhi Medical College, Hyderabad.

It is the first time that IAL biennial conference is being hosted as a Hybrid conference, with web based scientific deliberations as a key component. At the same time all the traditions and conventions are being followed in the physical part of the conference, which a limited number of delegates are attending in person. Keeping up the tradition & excellent hospitality of Hyderabad, the organizing committee, has made all necessary arrangements to provide the best scientific feast for an unforgettable experience even during the times of the ongoing epidemic. We have left no stone unturned to make sure everything is delivered to the audience as it has to be, in an effective way with an experienced technical team for web based part of the conference, while planning similarly for the physical part (which is also being web-cast live), following all the required norms and protocols of Covid prevention.

In the present era of advanced communication technology which provide access to advances in the subject, scientific gatherings of this nature will provide a great learning experience at the comfort of your place.

We thank members of our organising committee, most of them young dermatologists, who have worked with immense enthusiasm and interest in planning and organising this conference. It is indeed a privilege to work with such a wonderful team.

We the organizing committee of 31st Biennial conference also take this opportunity to thank the executive and members of IAL for extending all the support and guidance needed for hosting this conference.

We are confident that the scientific content of this conference will benefit the medical & leprosy fraternity, and young post graduate students in particular, with whom rests the future of leprosy. We are also hopeful of drawing the attention of medical fraternity and authorities working for leprosy to the issues of leprosy care which require attention through the deliberations of this conference.

Wishing you the best learning experience and a pleasant participation.

DR. P. NARASIMHA RAO
DR. DBN MURTHY
DR. G. NARSIMHA RAO NETHA
Organizing Chairpersons

Message from Organising Secretary

DR. BHUMESH KUMAR KATAKAM
Organizing Secretary

Dear Colleagues,

On behalf of the Organizing Committee, it is my special privilege and pleasure to invite you to Indian Association Of Leprologists (IAL) 31st Biennial Conference in hyderabad,from 16th to 18th April, 2021. We all are working hard to make IAL 31st Biennial Conference a truly memorable event with the Theme Of The Conference: Marching Towards Zero Leprosy In India.

The Organizing Committee is committed to make this academic event a scientific milestone in the dissipation of knowledge in all aspects of leprosy in adults and children. The conference will provide plenary lectures, interactive sessions, award paper sessions, free paper sessions and E-posters along with live workshops mainly focusing on 1. Skin smears, 2. Leprosy Physiotherapy, 3. Ultrasonography of Nerves in leprosy on 17th April. The scientific sessions will incorporate the latest updates in leprosy, which is the great imitator in the field of the medicine.

Eminent faculty comprising of experienced luminaries from across the India will be invited to interact in scientific deliberations with their knowledge, skill & vast experience by physical as well as virtual platforms. This will enable the younger dermatologists to interact with the very best in leprosy so as to update themselves with the latest developments. We will endeavor to offer a unique platform to exchange information, share education, experiences and review technology.

I sincerely thank the chief guest, guests of honor and the entire faculty of IAL conference.

We, the organizing committee, cordially welcome one and all to Hyderabad- the Pearl City, to attend Indian Association of Leprologists (IAL) 31st Biennial Conference from 16th to 18th April, 2021, so as to be a part of this mega educational, social, cultural & culinary feast.

Warm regards,
Organizing Secretary
Dr. Bhumesh Kumar Katakam
Associate Professor & HOD of DVL
GMC/GGH; SRPT; Telangana

Message from Scientific Chairman

DR. SUJAI SUNEETHA
Scientific Secretary
On Behalf of the Local Scientific Committee

On behalf of the Scientific Committee it is my honour and privilege to welcome you to the 31st Biennial Conference of the Indian Association of Leprologists (IAL) being held in Hyderabad. The theme for the conference is ***'Marching towards Zero Leprosy in India'***.

The pandemic has not only shaken the world but has baffled even the medical fraternity and has changed the way we think and do medical conferences. This conference is being held in the 'new normal' of an 'e-conference' and in an upgraded version of a 'Hybrid Conference'! We welcome some of you who have braved the times to a physical meet and those who will be joining us online due to the travel restrictions or due to an understandable concern for their health. Our primary concern is your safety and well being.

This scientific meet is spread over two and half days. We have been able to get a wide spectrum of invited speakers as faculty for the meet, many of whom will be speaking on the first day on the online platform. Participation of the Govt. of India / Central Leprosy Division and the WHO in the plenary sessions has enhanced the value for the meeting. We thank all those representing various Leprosy Institutes, NGO's, ILEP agencies and leprologists from across the country who are participating or serving as faculty.

The *Jal Mehta Oration*, *Dr. R Ganapathi Memorial Oration* and the *Rabindra Nath Dutta Memorial orations* will be delivered during the conference by eminent personalities who have served the field of leprosy. In spite of the times (or because of the times), we have received a wide plethora of research papers covering clinical, basic sciences, social aspects, prevention of disability and rehabilitation. We look forward with anticipation to the presentations. The scientific committee screened each of the abstracts and grouped them into oral papers and e-posters. We have ensured that some of the best papers were also chosen as e-posters to ensure that participants can view them on all three days of the conference. The RRE society has instituted awards for the best papers presented in the conference and the scientific committee has decided to recognize and award the best e-posters.

The profile of leprosy is changing and in the oral papers and e-posters you will find case reports and case series of very interesting presentations of leprosy. Presentations on the molecular diagnosis of leprosy as well as lepra reactions and drug resistance are advancements that need to be watched closely and applied practically in our goal towards *'Zero leprosy'* in India and the world.

A practical workshop is planned specially for post graduates on skin smears, leprosy physiotherapy and sonography of nerves in leprosy and we are happy to see over a hundred PG's register for it. This is planned in such a way that all safety norms are maintained during the sessions.

I commend to you an excellent scientific programme put together by the efficient scientific team. We thank the Central Scientific Committee - Advisor Dr. VM Katoch & Chairperson Dr. Sunil Dogra who guided us in planning the programme.

From the Editor's Desk

DR. INDIRA DANTURTY
Editor

Greetings to all.

We welcome you all to the 31st binennial conference of IAL that is being held in Hyderabad, the City of Pearls. We wish that you carry back home the Pearls of Knowledge & Learning of both theoratical and practical aspects as well as advances in leprosy after the conference.

This conference is unique in that it is held in a pandemic period in a hybrid model with limited number of audience physically present and following proper Covid precautions.

Hope this book of abstract will be of use for future reference. Dr. Nayeem Sadath Haneef's article on 'Zero leprosy in India by 2030 - the need to march away from rhetoric, towards reality', which discusses the post elimination challenges will be an intresting read. Website address of some intresting books on leprosy are included at the end.

We wish this conference a great success and thank the organizers for giving an opportunity to serve IAL.

Dr. Indira Danturty
Dr. Sruthi Kondaveeti
Dr. P. Navaneetha Reddy
Dr. Sirisha Gummadi

SCIENTIFIC PROGRAMME

31st BIENNIAL CONFERENCE OF INDIAN ASSOCIATION OF LEPROLOGISTS (IAL) April 16th to 18th 2021 Theme of the conference: *Marching towards Zero leprosy in India*	
Friday, 16th April 2021 – FULL DAY WEB BASED CONFERENCE	
Time	**PLENARY HALL** **Plenary Session I: E-Inaugural Session** Web Co-ordinator - Dr Alekya Singapore
10.00 – 10.45 am (45 min):	10.00 – 10.03 (3 min): Welcome (Organizing Committee Members) 10.03 – 10.10 (7min): Introduction: **Dr. Mrudula Save**, Gen. Secretary, IAL 10.10- 10.20 (10 min): Presidential Remarks – **Dr. Rathindra Nath Dutta**, President, IAL 10.20-10.40 (20 Min): National Perspective **– Ms. Rekha Shukla** 10.40-10.45 (5 min): Closing remarks & vote of thanks – Organizing Committee
	E-TEA BREAK – 15 min
	Plenary Session II: Epidemiology & Leprosy Control Web Co-ordinators – Dr Sirisha Varala, Dr S B Kavitha
11.00 - 12.15 pm (75 min):	**Chairpersons: Dr. MD Gupte & Dr. Bhushan Kumar** 11.00 – 11.20 (20 min): **Dr. Pemmaraju**, WHO GLP ***(WHO Perspective on epidemiology & leprosy control)*** 11.20 – 11.40 (20 min): **Dr. Dhingra,** CLD **/ Dr SV Gitte** ***(Planning of leprosy programme in India towards the goal of 'Zero leprosy')*** 11.40 – 12.00 (20 min): **Dr. HK Kar,** ***(Late & non-detection of LL cases: a concern for slow reduction of prevalence of leprosy in India)*** **Closing comments: 10 min - Chairpersons**
	Plenary Session III: Working Towards a Leprosy-Free World Web Co-ordinator - Dr Sirisha Varala
12.15 - 1.30 pm (75 min):	**Chairpersons: Dr. Kiran Katoch & Dr. Atul Shah** 12.15 – 12.35 (20 min): **Dr. Ashok Agarwal, ILEP** (ILEP strategy for a leprosy-free world) 12.35 – 12.55 (20 min): **Dr. Pathanjali Nayar, WHO** (Utilizing Assistive Technology to improve functionality in leprosy) 12.55 – 1.30 (35min): Panel Discussion - Working towards a leprosy free world Moderator: **Dr. Sunil Dogra** **Panellists: Dr. Kumaresan Kuppusamy / Dr. Jerry Joshua / Dr. Rajan Babu / Dr. Antony Samy / Dr. Gitanjali Saha**
	LUNCH BREAK: 1.30-2.00

	HALL A (e-Conf.)	HALL B (e-Conf.)
02.00 – 03.00 PM	**Chemotherapy including new regimens** Web Co-ordinator Dr Manogna vallela **Chairpersons: Dr. Santanu K Tripathi & Dr K Udaya Kiran** 02.00– 02.15 pm: **Dr. Tarun Narang** (Management of high BI MB leprosy) 02.15 – 02.30 pm: **Dr. VV Pai** (Newer Drugs & regimens in leprosy) 02.30 – 02.45 pm: **Dr. Joel Almeida** (Reinfection, ENL, Transmission - Challenges In diagnosis and management of lepromatous Patients) 02.45 – 03.00 pm: Open forum – **Dr. SK Tripathi**	**Pathology & Immunology** Web Co-ordinator Dr Sruthi Kondaveeti **Chairpersons: Dr. S Aparna & Dr. Sundeep Chaitanya** 02.00 – 02.15 pm: **Dr. Pushpendra Singh** (Genomics and molecular epidemiology of leprosy bacillus: current status) 02.15 – 02.30 pm: **Dr. Madhusmitha Das** (Improving the specificity & sensitivity of PCR Diagnostics in leprosy) 02.30 – 02.45 pm: **Dr. Itu Singh** (Translation Genomics & Genetics; its application in leprosy) 02.45 – 03.00 pm: Open forum -
03.00 – 04.00 PM	**Chemo & Immuno-prophylaxis of leprosy** Web Co-ordinator Dr Manogna vallela **Chairpersons: Dr. Binod Khaitan & Dr. Venkata Krishna** 03.00 – 03.15 pm: **Dr. Megha P Khobragade** (Single Dose Rifampicin (SDR): Field experiences of NLEP) 03.15 – 03.30 pm: **Dr. Santosh Rathod** (Potential role of MIP, SDR & PEP++ in preventing leprosy) 03.30 – 04.00 pm: Open Forum	**Championing the cause of people affected by leprosy (PAL)** Web Co-ordinator Dr Sruthi Kondaveeti **Chairpersons: Dr. Kurian John & Mr Muzaffarullah** 03.00 – 03.15 pm: **Dr. Sunil Anand** (Repealing discriminatory laws: a means to reducing stigma & discrimination) 03.15 – 03.30 pm: **Dr. Shiva Kumar -** (Addressing stigma & discrimination) 03.30 – 04.00 pm: Panel Discussion– Topic: ***Role of PAL in Strategy planning for Zero leprosy*** Moderator: **Dr. Kurian John** Panellists: Mr. Narsappa (APAL), Ms. PK Jayashree, Dr. Manisha Saxena, Dr. Sunil Anand, & Dr. Shiva Kumar & others
04.00 – 05.00	**Reaction, Nerve Damage & POD** Web Co-ordinator - Dr B. Manavi **Chairpersons: Dr. Archana Singhal & Dr. VV Dongre** 04.00 – 04.15 pm: **Dr. Joydeepa Darlong** (Special challenges in managing type 1 & type 2 reactions) 04.15- 04.30 pm: **Dr. Jerry Joshua** (Is there more to RCS in leprosy than tendon transfers?) 04.30 -04.45 pm: **Mr. Kartikeyan** (Role of physiotherapy & Occupational therapy in preventing & managing NFI in leprosy) 04-45 – 05.00 pm: Open forum	**Award Paper Session: 4.00 - 5.30 pm** Web Co-ordinator - Dr Kranthi Varma **Chairpersons: Dr. DBN Murthy & Dr. Nayeem Sadath** **Three Judges from IAL & RRE will evaluate the presentations** 4.00 – 5.30 pm: **Award Papers-** 12 (To be selected by the Scientific Committee) - RRE award & 31st Biennial conference award for best papers presented.
05.00 – 06.00	**Hall A: Integration of leprosy with NTD's** Web Co-ordinator - Dr B.Manavi **Chairpersons: Dr. Mary Verghese & Dr. Rashmi Shukla** 05.00 – 05.15 pm: **Dr. DS Chauhan** (Molecular diagnosis of leprosy & other NTD's) 05.15- 05.30 pm: **Dr. CR Revankar** (Widening horizon of Leprosy: NTD Roadmap2030 and Integration) 05.30 -05.45 pm: **Dr. Parul Verma** (Integrating leprosy with NTD's: benefits & Challenges) 05-45 – 06.00pm - Open forum	

Saturday, 17th April 2021 – HYBRID CONFERENCE

(WEB BASED & PHYSICAL CONFERENCE LIVE FEED)

10.00 – 01.00 pm	**PHYSICAL WORKSHOP ON LEPROSY FOR PG STUDENTS (NO WEB LINK OR LIVE FEED)**	
	Hall 1 **Skin Smears – Taking, Staining & Reading**	**Hall 2** **1. Leprosy Physiotherapy** **2. Ultrasonography of Nerves in leprosy**
	HYBRID CONFERENCE – Web Link & Live feed	
Time	**HALL A (e-Conf. Web Link)**	**HALL B (e-Conf. Web link)**
10.00 – 11.00 am	**Session: Epidemiology & Leprosy Control** Web Co-ordinator - Dr Alekya Singapore Chairpersons – **Dr. K A Seetharam** 10.00 – 10.15 am: Lead Talk: **Dr. VK Pannikar** (The New Global Leprosy Strategy 2021 - 2030) 10.15 – 11.00 am: Research Presentations: 1. ***Childhood leprosy cases with disability*** - Satyadarshi Patnaik 2. ***A socio- clinical patterns of leprosy in a tertiary care hospital*** – Dharpalli Swethanasree 3. ***Focal transmission of mycobacterium leprae infection in leprosy families of endemic region in India*** - RP Turankar 4. ***Role of helminthic parasite infection in the development of leprosy: A cohort study*** – V Singh 5. ***Evaluation of clinical spectrum and correlation of bacteriological index in slit skin smear and histopathology among newly detected Hansen's disease patients*** - G. Abirami	**Session: Topic: Early diagnosis / Drug resistance / Relapse:** Web Co-ordinator - Dr Sruthi Kondaveeti Chairpersons – **Dr. Utpal Sengupta & Dr. Vanaja Shetty** 10.00 – 10.15 am: Lead Talk: **Dr. Keshar Mohanty** (Advances in the immunology of leprosy) 10.15 – 11.00 am: Research Presentations: 1. ***Serum proteome analysis of contacts of leprosy cases for early diagnosis of leprosy*** – Deepa Bisht 2. ***Identification of biomarkers for early diagnosis of leprosy using transcriptomics approach*** – Anuj Mavlankar 3. ***A four-year retrospective study shows increasing rates of antimicrobial drug resistance in endemic region in India for M leprae*** - Itu Singh 4. ***Molecular screening of newly diagnosed leprosy cases for drug resistance in M. leprae.*** – Madhavi Ahuja 5. ***Clinical, bacteriological and molecular observations in relapses in leprosy*** – Wakade Anju
11.00 am – 12.00 pm	**Session: Digitalization of patient records & Clinical leprosy** Web Co-ordinator - Dr Rakesh Kumar Chairpersons – **Dr. Vani Patalay & Col. GK Prasad.** 11.00 – 11.15 am: Lead Talk – **Dr. Vamshidhar**, Novartis (Leprosy patients records database (LEOPARD): a project aimed at digitalization of patient records at Sivananda Rehabilitation Home, a teritiary care leprosy hospital)	**Session: Current issues impacting leprosy control & Covid 19** Web Co-ordinator - Dr Kranthi Varma Chairpersons – **Dr. Putta Srinivas & Dr. N Ramesh** 11.00 – 11.15 am: Lead Talk - **Dr. Deepika Pandhi** (Impact of Covid on leprosy Control) 11.15 – 12.00 pm: Research presentations 1. ***Enhancing access to Covid testing for people affected by leprosy*** - Michael Sukumar Pallapati

	11.15 – 12.00 pm: Research presentations 1. ***Childhood leprosy: a prospective study in post-elimination era*** - Varsha Babu Hunashikatti 2. ***Inoculation site (tattoo) leprosy*** – Farheen Begum 3. ***Unusual presentations of leprosy: a case series*** - Gumma Sai Snigdha Bhashitha 4. ***Leprosy masquerading as deep fungal infections*** – Harithasree L 5. ***Mixed infections of sporotrichosis and trichophytosis in a Hansen's patient*** - Shilpa Mary Philip	2. ***Impact of Covid-19 lockdown on treatment and care services: service provider survey of people affected with leprosy in Madhya Pradesh, India*** - Naveen Satle 3. ***Leprosy and Covid -19 co-infection – experience in a referral centre in Mumbai, India–*** Vivek Pai V 4. ***Barriers and facilitators of leprosy related health seeking behavior in tribal areas of Kerala: a qualitative study*** - Saritha Susan Varghese 5. ***A clinical study on immune zones in leprosy*** - Dr. T. Ravali Rao
12.00 – 01.00 pm	**Session: Reactions in leprosy** Web Co-ordinator - Dr Rakesh Kumar Chairpersons – **G Manmohan & Dr. M Jayanth** 12.00 – 12.15 pm: Lead Talk - **Dr. Sunil Dogra** (Management of Chronic & Recalcitrant Reactions) 12.15 – 01.00 pm: Research papers 1. ***Efficacy of mimicking B and T cell epitopes of Mycobacterium leprae and host as predictive biomarkers for pathogenesis of type 1 reaction in leprosy*** - VK Pathak 2. ***Dermascopy: a diagnostic tool in leprosy*** - Vinay Keshavmurthy 3. ***Trends of the steroids completion among the neuritis patients*** – Tasmin Jhan 4. ***Is this case- erythema necroticans (or) lucio phenomena (or) cutaneous polyarteritis nodosa*** - Gopi Krishna 5. ***Hansen's presenting as unmasking type of infectious iris*** - Abishek Kumar *6* ***Leprosy related knowledge among tribal population in two districts of kerala –*** Elsheba Matthew	**Session: Social aspect of leprosy** Web Co-ordinator - Dr Kranthi Varma Chairpersons – **Dr. Mohan Sain Mathur** 12.00 – 12.15 pm: Lead Talk - **Dr. Kurian John** (Effect of migration on leprosy control in India) 12.15 – 01.00 pm: Research papers 1. ***Employability of leprosy and other disabled after vocational trainings: a case study of influencing factors from Tamilnadu*** – Tinson Thomas 2. ***Innovations to the rescue: connecting the DOTS*** - Abirami 3. ***Profile of referrals for tertiary care of leprosy complications from government and private treatment centres*** - Prashant Jakhmola 4. ***A study of social stigma among the leprosy patients attending leprosy clinic at a tertiary health care centre*** - Bathula Amulya 5. ***Stagnant View of Hospitalization needs for Leprosy Complications*** – Jessy Kurian
	LUNCH: 01.00 - 01.45	

	HALL A: PLENARY SESSIONS HALL: LIVE FEED	
01.45 - 04.00 pm:	**Inauguration of Conference** 01.45 – 01.55 (10 min) **:** *Welcome of dignitaries to Dais & introduction by Organising Committee / Scientific Secretary* *01.55 -02.00 (05 min) : Lighting of lamp & declaring the Conference open* *02.00 – 02.10 (10 min) : IAL Secretary's address* – **Dr. Mrudula Save** *02.10 – 02.25(15 min) : Presidential Address* – **Dr. Rathindra Nath Dutta** *02.25 – 02.40 (15 min) : Address by the invited* ***Guest of honour*** **02.40- 02.55 Felicitation of life time achievement awardees (3) - (15 min)** *02.55- 03.00 (5 min) : Vote of Thanks* 03.00 - 03.15 (15 min) : **Keynote Address - Dr. VM Katoch**	
03.15 – 4.00 pm	**Jal Mehta Oration: Chair persons: Dr VH Jadhav / Dr Atul Shah** 03.15 -03.20(05 min) : Introduction of the Jal Mehta Oration: **Dr. VH Jadhav** 03.20 -03.25(05 min) : Introduction of the Jal Mehta Orator: **Dr. Atul Shah** 03.25 – 03.55 (30 min) **: Jal Mehta Oration: Dr. S Ananth Reddy** 03.55 – 04.00 (05 min) **:** Concluding remarks – Chairpersons	
	HALL A (Web link)	**HALL B (Web link)**
4.00 – 5.00 pm	**Session: Diagnosis & Differential Diagnosis:** Web Co-ordinator - Dr B Manavi Chairpersons: **Dr. Geeta Kiran & Dr Indira** 4.00 – 4.15 pm: Lead Speaker: **Dr. KS Baghotia** *(Delphi study on eradication of leprosy in India)* 04.15-05.00: Research papers 1. ***Role of high-resolution ultrasonography (HRUS) in leprous neuropathy*** – Khushbu Jadav 2. ***A case of histoid Hansen's disease with tuberculoid spectrum histopathological finding – a rare case report –*** A Ajith. 3. ***A case of Hansen's disease masquerading as polymorphic light eruption*** – Vinothini 4. ***Profile of new diagnosed child leprosy cases and counselling requirement –*** Sinphia Ajith ***5. Type 1 lepra reaction mimicking as bullous fixed drug eruption –*** P Pravalika. 6. ***Is granulomatous cheilitis: a separate entity or manifestation of leprosy?*** - Shefali V. Patel	**Session: Disability & Rehabilitation:** Web Co-ordinator - Dr Sangeeth Kumar **Chairpersons: Dr. VH Jadav & Dr. Neela Shah** 4.00 – 4.15 pm: Lead Speaker: **Dr. Atul Shah** *(Reconstructive Surgery (RCS) & Rehabilitation)* 04.15-05.00: Research papers 1. ***Comorbidities associated with non- healing of plantar ulcers in leprosy patients*** – Brahmaiah Upputuri 2. ***Study on efficacy of autologous platelet rich fibrin matrix for non-healing trophic ulcers in patients with Hansen's disease*** – Anusha Kurre 3.. ***A prospective and clinical study of 'autologous platelet rich fibrin' – a therapeutic biological option in the treatment of trophic ulcers of Hansen's etiology -***Ananthula Saketha . ***4 WHO leprosy disabilities: before and after multi drug therapy –*** K Krishna Priya ***5. A study of clinical pattern of deformities in Hansen's disease in a tertiary care center -*** Mandava Sneha Sree ***6. Leprosy en plaque-an unusual presentation on the foot –*** Lasya Priya

Hall D: Business Session of IAL - 4.00-6.00 pm (Closed meeting)

4.00 – 4.30 pm: IAL CC meeting

4.30 – 6.00: IAL AGB Meeting & Elections

Faculty dinner - 07.30 pm onwards

SUNDAY 18TH APRIL 2021 – PHYSICAL CONFERENCE LIVE FEED		
	HALL A	**HALL B**
8.30 - 9.30 am		**Hall D: IAL Central Council Meeting** 08.30 – 9.30 am
9.30 – 10.30	**Hall A: Focus Session on issues in leprosy** Chairpersons: **Dr. Sendhil Kumaran & Dr. Narasimha Rao Netha** 09.30-09.45 am: **Dr. Swapan Samantha** (Surgical procedures in the eye in leprosy) 9.45.00 – 10.00 am: **Dr. Kiran Katoch** (Advances in the serological & molecular diagnosis of leprosy) 10.00 – 10.15 am: **Dr. Vanaja Shetty** **(**Overcoming the challenge of drug resistance in leprosy)	
	TEA BREAK: 10.45 – 11.00 am	
	Plenary Session V: Orations	
11.00 - 11.45 am (45 min):	**Dr R. Ganapati Memorial Oration** **Chairpersons: Dr. Hemant K Kar and Dr. Vivek V Pai** 11.00 - 11.05 am (5 min)**:** Welcome 11.05 – 11.10 am (5 min): Introduction of the Oration: **Dr. Hemant K Kar** 11.10 – 11.15 am (5 min): Introduction of the Orator: **Dr. Vivek V Pai** 11.15 – 11.45 am (30 min): **Oration by: Dr. Anil Patki** Concluding Remarks: Chairpersons	
11.45 - 12.30 am (45 min):	**Rabindranath Dutta Memorial Oration** **Chairpersons: Prof. Dr. Rathindra Nath Dutta & Dr. Satyadarshi Patnaik** 11.45 – 11.50 am (5 min): Welcome 11.50 - 11.55 am (5 min): Introduction of the Oration: **Dr. Rathindra Nath Dutta** 11.55 – 12.00 pm (5 min): Introduction of the Orator: **Dr. Satyadarshi Patnaik** 12.00 – 12.30 pm (30 min): **Oration by: Dr. PC Singh** Concluding Remarks: Chairpersons	
	Awards and valedictory session	
12.30 –1.30 pm:	**Awards Ceremony** 12.30 – 12.45 pm: Awards: Best papers, Best E posters **Valedictory** 12.45 - 12.55 pm (10 min)**:** Welcome & remarks by Incoming President / Secretary 12.55 – 1.00 pm (5 min)**:** Introduction of New IAL EC team 1.00 – 1.15 pm (15 min)**:** Felicitations 1.15 - 1.25 pm (10 min): Remarks from members 1.25 – 1.30 pm (5 min) : Vote of Thanks from Organizing Committee	
	LUNCH & FAREWEL: 1.30 – 3.00 pm	

E-POSTER PAPER PRESENTATIONS

HALL – C - *ALL DAYS (16TH to 18th April)*

Awards will be given to best three E-posters

Titles and first authors:

1. EP1. Auto-reactive salivary and skin proteins: predictive biomarkers for pathogenesis of reactions in leprosy – VK Pathak

2. EP2. Life with Hansen's disease: an introspective study into the quality of life - Abirami C

3. EP3. Mycobacterium leprae genotypes and drug resistance mutations in Jabalpur district of Madhya Pradesh –Purna Dwivedi

4. EP4. Puzzling asymptomatic skin colored papules over face: a diagnostic conundrum - Akash Agarwal

5. EP5. Crust modified acid fast staining as an alternative method for confirming transepidermal elimination of *mycobacterium leprae* in a lepromatous leprosy patient - Jeebanjyoti Mishra

6. EP6. Hospitalization needs for plantar and palmar ulcer complications and gender variations – Raghunath Prajapati

7. EP7. Ocular complications among leprosy affected: trends of cases reported to a tertiary care hospital over the period of five years –Caleb

8. EP8. Stitch analysis of thalidomide and its analogues for predicting functional partners of human proteins – Aishwarya Jamalpur

9. EP9. Ultrasound (USG) of nerves as an additional tool in the diagnosis of pure neural leprosy: a study in a USG referral centre - Suman Jain

10. EP10. Leprosy in the elderly: a retrospective study of newly registered patients in a referral center in Hyderabad - Tanisha Bhatnagar

11. EP11. A rare case of de novo histoid leprosy in a 20-year-old female student – Farheen Kahkashan Ahmed

12. EP12. Dress syndrome in a case of lepromatous leprosy - J. Amrutha

13. EP13. Neurofibromatosis masquerading as lepromatous leprosy - Moni Singh

14. EP14. Nail changes in recent and old cases of leprosy - Sowmya P

15. EP15. Osteoporosis in leprosy patients – Swanam Gangopadhyay

16. EP16. Prescribing MDT (multi drug therapy) to a non-leprosy patient: not so uncommon occurrence in endemic countries – Parul Gohil

17. EP17. Socio-economic profile & health care associated costs for the patients with leprosy in an urban health care setting, Hyderabad - Khyathi Reddy

18. EP18. Staphylococcus aureus biofilm in leprosy foot ulcers - Ebineshan Kumar

19. EP19. A case of Hansen's disease presenting as ulceronecrotic erythema nodosum leprosum - a rare case report - S. Sangeetha

20. EP20. Thalidomide in the treatment of erythema nodosumleprosum (ENL) in an outpatient setting: a five-year retrospective analysis from a leprosy referral centre in India – Brahmaiah Upputuri

21. EP21. Reactions in childhood leprosy - a retrospective cohort study - Tharangini Mothukuri

22. EP22. Single plaque lepromatous leprosy presenting as granuloma annulare: a rare presentation - Keerthi vardhini

23. EP23. Painless amputation of digit in leprosy. – Malay K Chaudhari

WORKSHOPS

PHYSICAL WORKSHOPS ON LEPROSY FOR PG STUDENTS	
Hall 1	**Hall 2**
Skin Smears Taking, Staining & Reading	1. Leprosy Physiotherapy 2. Ultrasonography of Nerves in leprosy

Hand Notes: Annexure - I

Zero leprosy in India by 2030: the need to march away from rhetoric, towards reality

DR. NAYEEM SADATH HANEEF
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Deccan College of Medical Sciences, Hyderabad.

Introduction

Leprosy (Hansen's disease), caused by infection with the bacillus Mycobacterium leprae and in some cases Mycobacterium lepromatosis, has been known since antiquity (Sushrutha Samhita-600 BC).[1,2] Leprosy has been a significant public health and social problem due to its deforming, disabling and stigmatizing potential.[1] With the help of 100% coverage of free of cost multidrug therapy (MDT), leprosy was declared as "eliminated as a public health problem" globally in the year 2000, on reaching a prevalence of less than 1 case per 10,000 population.[1,3] India achieved this target by the end of the year 2005 under The National Leprosy Eradication Programme (NLEP) under the Ministry of Health and Family Welfare, Government of India (supported by WHO, ILEP, World Bank and other non-governmental organizations).[1,4] However, leprosy continues to reassert its significant presence even today, despite the exalted, rhetorical, new and renewed targets and slogans such as final push to leprosy elimination, zero leprosy by 2020, zero leprosy by 2030 and so on.[1] This commentary analyses the pitfalls of hurried, rhetorical targets and identifies more pragmatic strategies towards achieving a meaningful control of leprosy burden in the post elimination era, especially in the light of new challenges such as Covid-19 pandemic.[1]

Post Elimination Resurfacing of Leprosy in India

The great milestone of leprosy elimination has been mired in controversy.[1] After the hurried "final push" to achieve elimination targets, and eventually declaring elimination in 2005, there was a realization that the battle against leprosy was far from over.[5,6] There were many high-endemic regions with prevalence higher than 1/10,000 within the country at state or district levels even after 2005.[4,6] Though there is steady decline in prevalence at national level (0.67/10,000 population in mid-2018 and 0.57/10,000 in 2020), it is not uniform across the country.[1] Prevalence continues to be higher than1/10,000 in Chhattisgarh, Dadra and Nagar Haveli.[1,4] Moreover, in Odisha, Delhi, Chandigarh and Lakshadweep, prevalence rose back to more than 1/10,000 after initial elimination in 2011-12.[1,4]

Post-elimination, annual new case detection rate (NCDR) was far higher than what can be expected to result from long incubation period of leprosy. NCDR is still high in few states such as Chhattisgarh (16.2 per 1,00,000 population even in 2020), Bihar, Jharkhand, and Odisha.[1] Increasing number of cases and outbreaks are being found even in new states such as Gujarat, Tamil Nadu, Andhra Pradesh and Telangana. National NCDR showed a rising trend from 9.71/100,000 in 2016 to 10.12 in 2017.[1,2] High NCDR appears to be due to continued transmission of the disease (evidenced by 50% multibacillary cases and more than 9% child leprosy rate in new cases detected in 11 states/UTs of India), rather than attributable only to increased case detection activities by NLEP such as Leprosy Case Detection Campaign (LCDC), Focussed Leprosy Campaign (FLC), ASHA Based Surveillance for Leprosy Suspects (ABSULS) and Sparsh Leprosy Awareness Campaign (SLAC).[3] India is still home to 63 % of the global leprosy burden and more than 3 million people with leprosy deformities.[1-4]

These factors indicate that there is no adequate decline in leprosy transmission yet.[3,4] It is evident that the goal of leprosy elimination was achieved not only due to the success of MDT coverage, but also by an artificial reduction in prevalence with desperate statistical manoeuvring of epidemiological records. This manoeuvring included diluting the new case detection efforts, exclusion of single skin lesion patients (presumably less serious), shortening of duration of MDT from 2 years to 1 year, declaring patients as cured soon after release from treatment (RFT) etc ("Kathmandu Recommendations"), all done under pressure of achieving the statistical target of elimination.[3,4,5]

Reasons for Continued Active Transmission of Leprosy

Premature declaration of elimination of leprosy based only on prevalence, without actual reduction in the transmission of leprosy proved to be a costly mistake.[1,7] Under pressure to focus on other diseases such as HIV/AIDS and tuberculosis, the government policy makers misconceived that leprosy no longer required financial priority or a dedicated cadre of leprosy workers.[3,4] Despite opposition by the International Federation of Leprosy Organisations (ILEP), the vertical leprosy control programme was hastily integrated with the horizontal general health services.[1,4] This led to loss of leprosy expertise at the field level, resulting in under-reporting of leprosy cases and the resultant increase in number of new patients and disabilities.[4,6]

Other contributory factors to the continued active transmission of leprosy include migration from high endemic to low endemic areas for livelihood or due to climate situations like floods, shortened duration of MDT with resultant relapses in the long run, inadequacy of cell- mediated immunity in eliminating residual organisms especially in lepromatous patients, non- compliance to MDT, irregular follow up, delay in re-enrolment and re-treatment of relapsed patients, poor health and hygiene conditions, overcrowding, etc.[1,3,6] Transmission from animals like red squirrels, armadillos, parasitic worms in contaminated soil and water are recognized as additional factors globally.[1,3,7]

Repeated waves of Covid -19 (SARS CoV-2 virus) pandemic have posed new challenges for leprosy control activities.[1,8] Leprosy patients may be at higher risk of acquiring Covid-19 infection due to higher levels of LDH in multibacillary patients, neutrophilia during type 2 lepra reaction or due to immunosuppression caused by long term corticosteroid therapy (e"10 mg per day or a total cumulative dose e"700mg) used for lepra reactions.[1,8] Leprosy Special Interest Group (SIG) of the IADVL has suggested use of steroid sparing agents such as hydroxychloroquine, colchicine, thalidomide, minocycline, pentoxyphylline or NSAIDs wherever possible.[1,8] Leprosy patients co-infected with Covid-19 may be at higher risk of nerve damage due to shared neutrophil related pathogenesis. Covid infected leprosy patients may face more stigma.[1,8] According to Sasakawa, WHO goodwill ambassador for leprosy elimination, more than 50,000 leprosy patients in India suffered due to lack of access to leprosy services and food during the lockdown and also post lockdown. Accompanied MDT (A-MDT) to avoid monthly visit to collect MDT, postponement of elective reconstructive surgeries, counselling on telephone, social media (WhatsApp) or by ASHA workers are some of the helpful remedial measures.[1,8] Leprosy Mission Trust has started tele-counselling services in regional languages and the Global Partnership for Zero Leprosy (GPZL) has announced constitution of 3 working groups to tackle the Covid-19 related challenges.[1,8]

Renewed Efforts in Leprosy Control

Triple Zero Campaign and WHO Global Leprosy Strategy 2016–2020

Notwithstanding the post-elimination decline in global prevalence (0.2/10,000 population in 2018), leprosy continued to occur with almost same incidence as earlier in many leprosy endemic countries.[6,7] Till recently, there was constantly high number of new cases detected annually (around 2,00,000–2,50,000 cases every year), high percentage (9%) of children among the new cases and high disability rates among new

cases (indicator of delayed diagnosis and treatment).[1,3] India, Brazil and Indonesia together account for approximately 80% of the global cases.[1] As per NLEP, India accounted for the majority (58%) of new cases detected globally (1,20,000 new cases out of 2,10,000 global new cases reported in 2018).[9]

In its reassessment of the leprosy situation in the year 2013, WHO realized that the declaration of elimination in 2000 was premature and it was actually hindering rather than helping leprosy control.[1,10] There was a general consensus among experts that leprosy control had stagnated and there was a need for a new strategy based on incidence rather than prevalence, and based on early diagnosis and prompt treatment of all patients.[1,10] Persistent deep-rooted stigma and discrimination against leprosy patients needed to be tackled.[4,10] In this direction, a new initiative, the 'Triple Zero Campaign' was introduced in 2016 by ILEP and later endorsed by the WHO and Novartis pharmaceuticals.[1,7] The 3 important aims of 'Triple Zero Campaign' were to achieve zero transmission of the disease, zero new cases of childhood disability and zero stigma and discrimination by the year 2020.[1,7] Objectives were set to bring down grade 2 disability rate to less than 1 case per 1 million population and to remove all legislations potentially allowing discrimination against leprosy patients from all countries.[1,7] On the same path, WHO launched the "Global Leprosy Strategy 2016–2020: Accelerating towards a leprosy-free world" structured around the 3 core pillars of strengthening government partnership of leprosy programmes and research, stopping leprosy and its complications (by increased awareness, active case-finding & management) and stopping discriminatory laws to reduce stigma while promoting inclusion and rehabilitation.

The "Triple Zero Campaign" and "Global Leprosy Strategy 2016–2020" resulted in few productive outcomes such as formation of "Global Partnership for Zero Leprosy" in 2018 to connect multiple leprosy-related organisations, researchers, and leprosy affected people from across the world. [1,7] However, the objectives of Triple Zero Campaign and WHO Global Strategy 2016-20 could not be materialized fully, as leprosy showed resurgence in many parts of the world, notably India and Brazil.[1,7] It was realized that the triple zero goals for leprosy were unattainable in the near future, and hence the target was pushed from 2020 to the year 2030.[1,7]

Need For A Comprehensive Post Elimination Strategy

In order to achieve a meaningful reduction in the transmission of leprosy and the associated problems in this post elimination era, there is a need to augment the key interventions of the WHO Global Leprosy Strategy 2016–2020 with promising new interventions with increasing evidence base.[1,3,4,7] There is a need for a comprehensive strategy with a renewed outlook incorporating the following factors:[1]

Accepting that leprosy can't be easily eradicated:

The very expectation of zero transmission of leprosy is unrealistic by virtue of its long incubation period, potential zoonotic transmission from animals like armadillos, limitations in diagnostic tools, lack of a highly effective vaccine or treatment that halts transmission, poor living conditions and rising income disparities in endemic regions, etc.[1,7] Futility of chasing statistical targets such as prevalence less than 1/10,000 by 2000 or 'zero' leprosy by 2030 should be realized, as there will be significant number of people still getting infected / emerging out of the long incubation period and also suffering the resultant disability and stigma.[1,7]

Renewed Government /NGO Support:

Use of terms and declarations such as elimination, eradication, final push, last mile, zero leprosy etc should be avoided as they create wrong perception among government funding agencies that the disease is no longer a problem worthy of attention.[3,7] Constant postponement of target dates for elimination, eradication, and 'zero leprosy' (2000, 2005, 2020, 2030) contributed to donor fatigue among NGOs and agencies funding the MDT based control program such as Novartis Pharmaceuticals and Nippon Foundation.[1,7] This has led to an increased economic burden on the poor leprosy patients and decreased

motivation among the leprosy researchers.[10,11] Recent inclusion of leprosy in the London Declaration's 2030 eradication goals and financial support by Bill and Melinda Gates Foundation have provided a new impetus for leprosy control.[1,7]

Structured Investment Planning for Interventions:

In a review of 112 articles under Leprosy Elimination Investment Case (LEIC) framework, Tiwari et al found that the current WHO road map for leprosy elimination was too vague, with scanty quantitative data.[1,12] Therefore, there is a need for measuring the disease burden comprehensively under well designed LEIC framework for measured investment and quantitatively monitoring the outcome of global elimination interventions.[1,12]

Global Partnerships and Enhanced Networking:

Partnerships such as Global Partnership for Zero Leprosy (GPZL) should be strengthened for better networking among the stakeholders of leprosy control initiatives.[1,3,7] In the absence of a dedicated cadre of leprosy workers, dermatologists are now the predominant force treating the leprosy patients, many of whom are not reflected in the NLEP statistics.[1,4] It is imperative that associations such as IADVL (Indian Association of Dermatologists, Venereologists and Leprologists) and IAL (Indian Association of Leprologists), with vast number of members, having high expertise in leprosy and excellent networking, should be integral part of leprosy control initiatives in India.[1,4]

Enhanced Training In Leprosy:

After the horizontalization of the leprosy control services, there is huge loss of expertise among the health workers in India, leading to underdiagnosis and mismanagement of leprosy cases.[6,7] Enhanced leprosy training for vast number of health workers can be facilitated by digital technology.[1,4,6] Training of medical graduates in leprosy needs to be enhanced.

Reporting and Data Management:

Gaps in reported cases and actual leprosy cases need to be bridged.[1,4] A web based reporting system for leprosy by NLEP known as "Nikusth" is a valuable tool for the ease of reporting and data management of all leprosy cases.[1,4]

Improving Living Conditions:

Leprosy is predominantly associated with poverty, overcrowding and poor sanitary conditions.[7] Unfortunately, leprosy endemic countries tend to resort to statistical manoeuvring to claim leprosy elimination, as it reflects on their performance in improving overall living conditions of their population.[1,7] The governments should stop treating this as a prestige issue and rather acknowledge the ground reality and continue to improve the living standards.[3,6,7] The first Global Forum of People's Organisations on Hansen's Disease at the 2019 International Leprosy Congress highlighted the importance of improving living standards including clean water, sanitation, proper housing, education and dignified work.[1,7]

Tackling Dehabilitation:

There is still a significant level of dehabilitation of leprosy patients, which should be addressed with rehabilitation efforts.[1,13] Seshadri et al found medium level dehabilitation on the 52-item Anandaraj Dehabilitation scale in 100 leprosy patients who reported behaviours such as avoidance of meeting friends, hiding the diagnosis from family members, worrying about job loss, avoidance of touching children and others' utensils, avoidance of sexual relations, difficulty in finding marital partner, anxiety, guilt and suicidal ideas.[13]

Early Detection of New Cases:

Finding undiagnosed leprosy cases is the cornerstone of any leprosy control strategy.[3,6] Undetected cases contribute to higher disabilities and act as reservoirs for continued transmission of the disease.[7,14] House

to house surveys are a useful tool, but labour intensive and require enhanced funding.[1,6] In areas where the prevalence of the disease has declined, picking up a few hidden cases in a large population poses a great challenge.[15] Early diagnosis of leprosy is easier said than done due to its insidious onset, chronic progression and asymptomatic and variable skin lesions.[15] Therefore, there is a need for innovative and effective new case detection strategies.[15] In Shandong province of China (which was once a high endemic area, but now with very low prevalence of leprosy), comprehensive measures for early detection of new cases and reduction of grade 2 disability among newly detected patients were implemented for a decade (2007-2017).[15] Those measures such as health promotion campaigns (print and digital), personnel training, offering reward (financial and a certificate of honour) for people detecting and reporting a case, symptom surveillance to identify suspected cases and a powerful referral centre with experienced staff and robust laboratory (with PCR test facility) were highly successful in early detection of new cases of leprosy and reduction of grade 2 disabilities among newly detected cases.[15] In India too, the increased active new case detection in recent years due to sustained LCDC has resulted in reduction of grade 2 disability (G2D) rate among new cases from 4.46/million population in 2015-16 to 3.34/ million population in 2017-18.[1,4] Focussing new case detection efforts in specific areas with socioeconomic markers (increased age, lower level of education, poor sanitary and socioeconomic conditions, food-insecurity, overcrowding) associated with increased chances of occurrence of leprosy can be more rewarding.[1,16] Besides effective utilization of Slit Skin Smear, newer techniques like RLEP-PCR or antibody based assays using antigens like PGL 1 or LID 1 or NDO LID can be helpful for early diagnosis of leprosy.[1,2,17]

Use of Effective Treatment Regimen:

MDT has been used to treat more than 16 million leprosy patients in a span of 2 decades and it has been the single biggest factor in bringing down the global leprosy prevalence by 96% (5.3 million cases in 1985 to around 2,00,000 in 2015).[1,3] Despite this huge success of WHO -MDT regimen, various other treatment regimens have been tried in an attempt to achieve better efficacy, better compliance, lesser adverse effects and lesser relapse or resistance.[4] For example, in the USA, the US NHDP leprosy treatment guidelines recommend daily dose of rifampicin in all types of leprosy in all age groups, unlike monthly once in case of WHO MDT regimen, longer duration of treatment (12 months and 24 months for PB and MB leprosy respectively), and in case of children, use of clarithromycin instead of clofazimine.[18] Besides this, various other combinations of drugs such as clarithromycin, minocycline, moxifloxacin, sparfloxacin, ofloxacin, levofloxacin, rifabutin, rifapentine etc have been tried, notably ROM (rifampicin-ofloxacin-minocyclin) therapy.[4] It is not easy to quantitatively compare the efficacy of WHO MDT regimen with other regimens due to lack of an accurate quantitative endpoint and chances of relapse even after 15-20 years.[19] But, in a systematic review of 25 studies between 1982-2018, comparing various anti-leprosy regimens to WHO MDT, Lazo-Porras et al found no better treatment regimen than the WHO MDT.[19] Interestingly, addition of clofazimine to PB MDT, being advocated by WHO nowadays as part of Uniform MDT (U-MDT), was also found to have no additional benefit.[19] However, the quest for developing newer alternatives (eg. Bedaquiline) to the long used 3 drugs of rifampicin, clofazimine and dapsone should continue, especially in the light of increasing drug resistance.[1,6] In patients suspected of drug resistance, it is now possible to detect mutation in drug resistant determining region (DRDR) of M. leprae with the help of molecular techniques using slit skin smear or skin biopsy specimen.[1,2] Reconstructive surgeries for deformities need to be facilitated.

Ensuring Minimum Default Rate:

Default in treatment contributes to continued transmission of leprosy as well as to drug resistance.[6] Training of health workers and measures such as A-MDT (accompanied MDT) can help ensure compliance with the treatment, especially in the context of Covid-19 pandemic.[6,8] Digital technology and mobile telephony are valuable new tools for better monitoring of patients.[1,6]

Contact Tracing:

Family members and other close contacts of leprosy patients should be encouraged to come for evaluation in a non-coercive manner.[1,6] Unfortunately, this may contribute to stigma against the affected patient, and hence at least household contacts should be traced and evaluated.[1,6] Early diagnosis of neural impairment among household contacts can be aided by molecular, immunological and neurophysiological evaluations using ELISA-PGL1, peripheral blood qPCR etc.[20]

Chemoprophylaxis / Immunoprophylaxis of Close Contacts:

Based on COLEP trial in Bangladesh, Leprosy Post- Exposure Prophylaxis (LPEP) program for contacts using single dose rifampicin (SDR) was initiated in 2014 in India, Indonesia, Nepal, Myanmar, Tanzania, Sri Lanka, Brazil and Cambodia.[4,6] People having prolonged regular or interrupted contact with an index case during the last 1 year are given a single dose of 600 mg of rifampicin for above 35 kg body weight, 450 mg for 20 to 35 kg weight, and 10-15 mg/kg for <20 kg body weight.[4] The efficacy is 50-60% protection up to 2 years, but lower beyond 2 years.[4,6] There are concerns about its potential for contributing to secondary drug resistance in the long run, endangering the future of rifampicin use in both leprosy and tuberculosis, though this risk was found to be negligible in a study.[4,6]

NLEP initiated a vaccine project in 2016 with MIP (Mycobacterium indicus pranii) vaccine.[4,6] It is given twice at an interval of 6 months, with a booster dose at 2 years.[6] It has immunotherapeutic role in multibacillary leprosy patients as well as immune-prophylactic action in contacts.[4] MIP vaccinated population was found to be protected up to 68% in the first year, 60% in the second year and 28% at the end of third year post-vaccination.[6] Lepromin-negative individuals (lacking cell mediated immunity towards M. leprae) can particularly benefit from vaccination.[1,2]

Health Education & Awareness Campaigns- Reducing Stigma:

Initiatives such as "focused leprosy awareness campaign" using ASHA and multipurpose health workers (in hot spots with new cases with Grade 2 Disability) and the "SPARSH Leprosy Awareness Campaign" (SLAC- launched on 30th January 2017) promote awareness and reduce stigma, thereby promoting self-reporting by hidden cases.[3,4]

Conclusion

After the premature declaration of elimination, leprosy has constantly reasserted it's unabated transmission in many parts of the world, particularly in India.[4,6] Despite this, we are still in the pursuit of "zero leprosy", originally planned to be achieved by 2020, but now pushed to 2030.[1,7] Covid-19 pandemic has come as a further dampener.[1,8] There is a need to learn from the past mistakes, acknowledge the ground reality and de-emphasize the 'zero' rhetoric.[1,7] Such exalted, unattainable goals can prove counter-productive, resulting in decreased attention to leprosy services with unfortunate resurfacing of this disabling and stigmatizing disease.[1,7] It will be more fruitful to re-channelize the resources and expertise towards early detection of cases and wholistic management of patients and contacts with a combination of time tested measures and technological advances, while also improving the overall living conditions of the people.[1,7]

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LIFETIME ACHIEVEMENT AWARDS

LIFETIME ACHIEVEMENT AWARDEE

Dr. SIGAMONI ARUNTHATHI
M.B.B.S., D.D., M.D (Derm.)
Tamilnadu

Dr. Sigamoni Arunthathi completed her postgraduate studies in Dermatology and Leprosy from the Jawaharlal Institute of Postgraduate Medical Education and Research Centre at Pondicherry. She was awarded by the Institution for her meritorious and devoted work towards patients' welfare during the year 1974.

She joined the Institution of Schieffelin Institute of Health-Research & Leprosy Centre, Karigiri in the year 1977 and completed 25 years of service in 2002. Dr.Arunthathi systematically and significantly contributed to elevating the quality of care given to leprosy patients. She received the honour award '98' by the Rotary Club of Vellore for Service and Dedication for the care of leprosy patients.

She was a great teacher, responsible for over 50 batches of the 6 week Medical Officer course and for several seminars and took an active role in many of the research activities of this Institution.

She was a member of several Expert Committees in Leprosy at both National and International levels. Presented papers on leprosy at Conferences / Workshops, Poster presentations at the International Leprosy Congress, published more than 10 papers on leprosy in various journals, prepared teaching materials – KLEP booklets on clinical leprosy and audio visual aids:-

- Leprosy the great imitator on Differential Diagnosis of Leprosy
- Five faces of Leprosy: on Clinical manifestations of Leprosy

Dr.Sigamoni Arunthathi was an able counsellor, who enriched the lives of many patients, trainees and staff by her advice and support. In appreciation of her dedicated services she was honoured at the 47th Anniversary of the Institution in June 2002.

She continued her services as Head, Department of Dermatology & Leprosy at St.Thomas Hospital and Leprosy Centre, Chettupattu-606801, Tiruvannamalai District since 2002.

She continued her teaching and guiding DNB (Derm.) students in their thesis work at Schieffelin Institute of Health-Research and Leprosy Centre, Karigiri, Tamil Nadu, India.

At present working as part time Consultant of Dermatology & Leprosy at St.Thomas Hospital & Leprosy Centre, Chettupattu, Tiruvannamalai District, Tamil Nadu, India.

LIFETIME ACHIEVEMENT AWARDEE

DR. VIJAYKUMAR VINAYAK DONGRE
GFAM, LMP, MBBS, DVD, PGD – PR&A, PGD – MLS, DHA, DSW, DHE.
Maharashtra

Brief account of his works:

Clinical:

- Worked at State Govt. Hospitals (JJ Hosp.) and Mumbai Municipal Corporations hospitals (KEM, Nair, LTMM Hosp., Sion, Municipal Dispensaries and Acworth Leprosy Hospital at Wadala), Acworth Leprosy Hospital.
- Supervised clinical work in 11 tribal districts of Maharashtra and 1 district of Chhattisgarh under LEAP of ALERT-INDIA organisation.
- Assisted plastic surgeons during operations in the Acworth Leprosy Hospital, Wadala.

Training & teaching:

- In Teaching field since August 1964, given 10,000 lectures in 56 years in English, Hindi, Marathi on leprosy for the benefit of medical, paramedical and social personnel.
- Active part in the preparation of educational film on leprosy by Gandhi Memorial Leprosy Foundation for doctors.

Books and booklets:

- Nearly 60 in English, Hindi, Marathi and Gujarathi for the benefit of students, teachers, general public on different aspects of leprosy distributed free of cost to concerned people and NGOs.

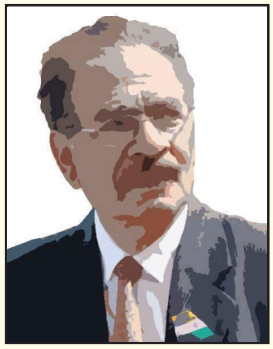
Leprosy Awareness:

- Interviews on leprosy in Daily, Loksatta, Afternoon, Times of India, Indian Express have been published.
- Written articles and letters on different aspects of leprosy in Marathi and English dailies
- Talks on leprosy and interviews; 35 broadcasts on all India Radio, at Mumbai “A”, “B”, Vividh Bharati, Nagpur, New Delhi, Pune (in English, Marathi and Hindi) and Television in English, Hindi, Marathi for the benefit of general public and doctors.
- Articles in the medical and lay press on medical, social legal aspects on leprosy.
- Translation of UNO’s Book In English Into Marathi On Human Rights Of Leprosy Patients Published By National Leprosy Forum.

Present Honorary Posts :

1. President, National Leprosy Organisation
2. Vice President – Acworth Leprosy Hospital Society for Research, Rehabilitation & Education in Leprosy, Mumbai
3. Hon. Secretary, The Society for the Eradication of Leprosy, Bombay House, 24 Homi Mody Street, Mumbai – 400 023
4. Sr. Consultant, LEAP, ALERT-INDIA, Mumbai

LIFETIME ACHIEVEMENT AWARDEE



DR. KAMLAKAR L. BHANDARKAR
M.B.B.S; M.D.
Madhya Pradesh

Passionate, motivated medical professional with a comprehensive background in Preventive Care. Well equipped to provide the primary and advanced medical care to the patients, hands-on medical practices. Zeal to collaborate within the large team to achieve goals. Approach to innovative thinking helps me reach his goals faster. He believes that patient care should be a physician's first priority. Thus he loves to help patients to understand their health and things they can do on their own as well as medications or therapies that could be helpful.

Goals achieved:

- Construction of“Patient Care Home” at every village postings during the career
- Created training modules for the healthcare staffs.
- Built Paramedical team from the population, thus created employment opportunities.
- Setup ArogyaKendra in the villages.
- Created Sanitary Pad Schemes
- Substantial Eradication of Leprosy in Rural Areas Citations and Recognition:
- Lifetime Achievement Award by Health Dept; Govtof MP.
- Many International recognition and local awards.

In his words:

"Why I wanted to be a doctor?"

Born in big joint family, with diverse personalities and professions from farming to administrative jobs. The childhood environ taught me tenacity and patience, the importance of giving back and that helping people is incredibly rewarding, and it always makes one happy and fulfilling.

Since my childhood, I was taught the value of serving people selflessly. Looking at their sufferings with lack of proper health services, I felt being doctor is most fitting & noble profession.

My Journey to Eradicate Leprosy:
I had a glorious 27 years of State Govt. service before I took volunteer retirement from the post of Dy. Chief Medical Officer to provide larger coverage of my services to entire nation. Then my next journey started with Danlep, followed by Lepra & ILEP in Uttar Pradesh and then Madhya Pradesh spanning over 17 years. During my service in Leprocy erodication programme, Govt. of Madhya Pradesh not only honored me as ‘Health Ambassador’ but also felicitated me life time achievement award in 2018. And my journey continues...

ORATIONS

ORATIONS

JAL MEHTA ORATION
"MILESTONES OF MY JOURNEY IN LEPROSY"

DR.S. ANANTH REDDY

Brief biodata of Dr. S. Ananth Reddy

- MBBS Graduated from KAKATIYA UNIVERSITY and Trained in Leprosy : 1982 at SLRTC, Karigiri
- Current Position: Chief Administrator & Reconstructive Surgeon – from 2014 August – till date
- Previous Positions : Medical Officer, Sivananda Urban Leprosy Control Project – 1982 to 1992
  - o Assistant Reconstructive Surgeon - 1992 – 2014
  - o Chief Administrator & Assistant Reconstructive Surgeon - 2014 - 2016
  - o Chief Administrator & Reconstructive Surgeon - 2016 till date.
- Presented many Scientific papers Nationally & Internationally (Nederlands, Florida, Brussels, Philippines
- Received several Awards/Appreciations/Mementos from the State Government, Health Departments and from Voluntary Organisations etc.
- Recently, IMA Mediko Health Care Excellence Award presented Certificate "in recognition of the excellent and invaluable contribution to the Health Care Sector in India and for brilliant and consistent high quality of work".

Abstract

In this oration talk I will trace my steps and milestones in my journey in leprosy.

1980 – When I graduated from KMC Warangal in 1980, my SPM Professor Dr.Srihari called me and inspired me to do some significant service to the society and not to fill my pocket with money.

- In 1982 I took up my first full time job as a Medical Officer in Sivananda Rehabilitation Home (SRH) where I continue today.
- When I first joined SRH, The Chief Surgeon Dr.August Beine asked me to do a simple test of picking up match sticks with my fingers and he said that I am not fit to be a Reconstructive Surgeon and my fingers are very big. But, looking back I can say that I have been able to do over 6,000 Surgeries

directly or as Assistant Surgeon under him itself.

- For 10 years I worked as a Medical Officer, Incharge of Urban Leprosy Control Project in Hyderabad. That experience gave me confidence to work in leprosy all my life.
- In 1982, I joined the A.P.State Government as Medical Officer.
- The State Government has recognized the importance of Service as a Reconstructive Surgeon at SRH in the field of treatment of leprosy, accordingly posted to SRH as a Civil Asst. Surgeon in the year 1992. Also this facilitated me in learning surgery at SRH under Dr.Beine as a Government Servant. He taught me all the different surgical techniques which I am still using today. He also deputed me to Germany to learn hand surgery for three months with the intension of learning small joint replacements in leprosy patients.
- Also after the promotion as a Dy.Civil Surgeon in the year 2009, upgraded the existing Civil Asst. Surgeon post by the State Government to Dy.Civil Surgeon Post facilitating to post in the same and accordingly posted to SRHome as Dy.Civil Surgeon from 2009 till Retirement.
- In this oration, I will outline some of the following surgical experiences over the last 39 years at SRH.

Hand Surgeries :

- Palmaris longus 5 tail
- Modified by Dr.August Beine
- Apponens Replacement (3 Tail) - modified by Dr.August Beine
- Partial Flexor Carpi Ulnaris Transfer
- FDS (Flexor Digitorum Superficialis) transfer

Foot :

- Tibialis Posterior Transfer
- Claw toe correction
- Tend Archilis Lengthening

Eye :

- Logaphtholmos correction – limited number

Three Other Surgical Procedures are :

- Full thickness skin graft to release contractures in fingers
- Partial thickness skin grafts for foot ulcers
- Other septic surgeries for tropical ulcers

These experiences I have been able to share at different Six International Leprosy Congresses in Delhi, Orlando, Hague, Hyderabad, Brussels & Manila.

These surgical techniques have also been presented at IAL Conferences. I am happy that my first paper on epidermal skin graft in non healing wounds was at the IAL Conference in Visakhapatnam.

I am grateful to Dr.August Beine of Sivananda Rehabilitation Home and all my colleagues & Management of SRH and German Leprosy Relief Association, Germany who have encouraged me all these 39 years.

I am honored to receive "The Jal Mehta Oration" and I thank the Indian Association of Leprologists.

ORATIONS

DR R GANAPATHI MEMORIAL ORATION

DR. ANIL PATKI

Brief biodata of Dr Anil Patki

- Completed MBBS in 1982 from BJ Medical college, Pune
- Completed MD in Dermatology, Venereology and Leprology in 1985 from BJ Medical College and Sassoon General Hospitals, Pune
- Passed DNB (Dermato-venereology) in 1986
- Worked as a visiting leprologist at Dr Bandorawalla Leprosy Hospital, Kondhwa, Pune from 1986 to 1992
- Worked as honorary dermatologist at Ruby Hall Clinic, Pune from 1992 to 2015
- Currently working as honorary dermatologist at Deenanath Mangeshkar Hospital and Research Centre, Pune
- Private practice in Pune since 1986
- Special interest in leprosy (clinical and pathology) and dermatopathology
- More than 40 publications in national and international journals

ABSTRACT

Leprosy is a disease of skin, nerves and nasal mucosa with protean manifestations. It is the only bacterial disease caused by *Mycobacterium leprae* where the bacilli directly invade the nerves. My talk will cover some interesting clinical findings that I have encountered during my observations in treating my leprosy patients.

The first (and single) lesion of leprosy is often found on the exposed parts of the body. Since the ultraviolet (UV) light of the sun is known to cause abrogation of the antigen –presenting function of Langerhan's cells, immunosuppression caused by the sunlight is a likely co-factor in the pathogenesis of the first lesion of leprosy if we assume minor breaches in the skin as the entry point of the bacilli. This hypothesis, however, remains unproven to my knowledge. It may be possible to prove it by doing lepromin test in normal and UV-irradiated skin in the same patient.

Several findings have been observed in the nails of leprosy patients which we have classified as those due to neuropathy and trauma, vascular deficit, infections and miscellaneous causes. Dorsal pterygium of the nail, ventral pterygium (pterygium inversum unguis), Beau's lines due to dapsone induced erythroderma and multiple Beau's lines due to recurrent type 2 lepra reactions have been noted. Dorsal pterygium is the extension of the dorsal nail fold onto the nail plate. Pterygium inversum unguis is caused by fusion of the hyponychium to the undersurface of the nail plate thus obliterating the distal nail groove. It has been described as a congenital condition or an acquired one in cases of connective tissue disorders. We have described it in leprosy. Beau's lines are transverse depressions that develop on the nail plates due to sudden arrest of the nail matrix. These lines migrate distally with the growth of the nails. Dapsone induced erythroderma causing sudden arrest of the nail matrix leading to Beau's lines has been described. Recurrent type 2 lepra reaction leading to multiple Beau's lines has been seen. Repeated unrecognised trauma in insensitive fingers leads to loss of the distal part of the bone of the phalanx. A change in the orientation of the nail matrix which curves over the remaining bone leads to a horn-like nail.

Trophic ulcers on the soles is a condition which can occur even in cured patients with damaged posterior tibial nerves. In a cured patient with infected ulcer on the foot, posterior tibial nerve is often tender. This tenderness can be mistaken for activity of the disease and relapse or a reversal reaction. However, the tenderness is most probably due to inflamed lymphatics travelling along the nerve. This tenderness often disappears after control of the sepsis with antibiotics.

Another interesting finding in patients with sensory loss on lower limbs is the development of verrucous lesions on the anterior aspects of ankles. These can be mistaken for warts, tuberculosis verrucosa cutis or deep fungal infections like sporotrichosis or chromomycosis. However, unlike these infectious conditions, these are bilaterally symmetrical and seem to result from chronic irritation caused by uppers of cheap plastic shoes. Three morphological types of these lesions will be described. Removal of the cause and topical treatment helps in their regression. Sililar lesions on the soles have been described by other workers in a patient with diabetic neuropathy.

RABINDRANATH DUTTA MEMORIAL ORATION
"MY TRYSTY WITH LEPROSY"

PROF. P.C. SINGH, MD

Brief biodata of PROF. P.C. SINGH

- Completed MBBS in 1966 from Burla Medical College, Odisha
- Completed MD in Dermatology, Venereology and Leprology in 1971 from S.C.B Medical College, Cuttack.
- Joined as teacher in dermatology in 1971 and eventually promoted to rank of professor and worked in all the medical colleges of Odisha as Prof. & HOD of Dermatology.
- Retired from Govt. service in 2001.
- Worked as Prof. & HOD of Dermatology in CIMS, Bilaspur, C.G., High tech medical college, BBSR., KIMS, Bhubaneswar, Odisha after retirement till 2014
- Presently working as principal, Chakradhara Institute of Rehabilitation Sciences, Bhubaneswar.
- Conducted workshops and seminars on Leprosy in different parts of Odisha.
- Organized many state level IADVL conferences
- Felicitated in 2015 in 3rd national CME conducted in SCB Medical college by IAL
- Honoured with lifetime achievement award in 4th Mid-Dermacon of IADVL in 2016

ABSTRACT

I was born in Talcher a small town in Odisha way back in 1943. Leprosy was rampant at that time, pitiable condition of leprosy patients subjected to in human social ostrasicism touched me profoundly as a teenager. To help these unfortunate patients. I became a doctor. After graduation in medicine in 1966 I was influenced by my teacher and mentor Prof. H.C. Mohanty and become a dermatologist by choice not by chance. During my PG period at S.C.B. Medical college I had to work under Prof. K. C. Sahu who was my guide. Prof. Sahu asked me to work 2 days a week at Leprosy home & hospital at Naya bazar Cuttack which gave me a chance to gather unique experience by handling more than 500 patient. After my post-graduation at 1971 I worked as a teacher of Dermatology. During my long career as a teacher of Dermatology I had the good fortune of working underProf. D. M. Sahoo, who encouraged me to work with a free hand on different aspects of leprosy. My association with Prof. D. C. Jena, with whom I worked on leprosy vaccine in collaboration with Prof. Talwar and his group. I also recall with nostalgia my

association with Prof. Mac Dugal who shared the platform in two seminars conducted to impress the authorities to give Leprosy its due place in the U. G & P. G study. To cut a long story short we worked on the following.

- Modification of MDT in immunological unstable cases to avert R. R.
- Observation on chemoprophylaxis of contacts of Leprosy.
- Early diagnosis of Leprosy.
- Role of intraneural and perineural steroid injection in control of disability.

Medical personnel know ways & means to handle Leprosy and prevent complications. The time is ripe to empower the patients, their family members, the leaders of the society, and society at large. Disability limitation can be achieved by not allowing IMPAIRMENT to go downhill to DISABILITY ending in HANDICAP and DESTITUTION. Social participate is very crucial. More IECs are called for.

PLENARY TALKS

FRIDAY, 16th APRIL 2021

PLENARY HALL

11.00 - 12.15 pm :

PLENARY SESSION II: EPIDEMIOLOGY & LEPROSY CONTROL

Chairpersons: Dr. MD Gupte & Dr. Bhushan Kumar

11.00 – 11.20 (20 min)

WHO PERSPECTIVE OF EPIDEMIOLOGY AND LEPROSY (HANSEN DISEASE) CONTROL

Dr. V R Pemmaraju, Global Leprosy Programme, WHO

Introduction of multi-drug therapy (MDT) in early nineteen eighties brought a paradigm shift in leprosy control. Leprosy got included as a curable disease. Most leprosy endemic countries adopted MDT millions of patients were brought under MDT. Noting the enhanced coverage of MDT and reduction of registered prevalence of leprosy in the countries, World Health Assembly called for elimination of leprosy as a public health problem by 2000 globally. Most endemic countries reached the goal by reducing registered prevalence to less than one case per 10,000 population by 2005. Sub-sequent global leprosy strategies focused on reduction of new cases and particularly those with grade 2 disabilities.

Though prevalence of leprosy is sustained at less than one case per 10,000 population globally, new cases continued to occur. Globally 202 259 new cases were reported in 2019. 39% of the new cases were women and 6% of them were children. The trend of new case detection indicated a marginal reduction of new cases(by 2% annually) for the past fifteen years. Gradual decline in numbers of new child cases and cases with (G2D) were observed for the past two decades. The distribution of leprosy is uneven across the world; 96% of new cases were found in 23 high endemic countries. In 2019, 0f the total 162 countries which reported leprosy, 45 countries reported 'zero' cases and 33 cases reported less than 10 cases. On the other end of the spectrum 13 countries reported more than 1,000 new cases and three more than 10,000 new cases.

To improve detection of new cases and accelerate the pace towards elimination of the disease, new strategic directions were explored. Considering available evidence on prevention of leprosy, post-exposure prophylaxis with single dose rifampicin for contacts was introduced to strategy. Recognizing the Similarly, inclusion of persons affected by leprosy was introduced in the global leprosy strategy covering ten years from 2021-2030. The strategy is developed with a vision of zero disease, disabilities and discrimination calling for a concerted actions through zero-leprosy roadmaps involving health providers from government and private sector, persons affected, donors and civil society organizations.

PLANNING OF LEPROSY PROGRAMME IN INDIA TOWARDS THE GOAL OF 'ZERO LEPROSY' - Dr.Dhingra, CLD

11.20 – 11.40 (20 min)

PLANNING OF LEPROSY PROGRAMME IN INDIA TOWARDS THE GOAL OF 'ZERO LEPROSY' - Dr. Dhingra, CLD

11.40 – 12.00 (20 min)

LATE DETECTION/ UNDETECTION OF LEPROMATOUS LEPROSY CASES," IS IT A CONCERN FOR SLOW REDUCTION OF PREVALENCE OF LEPROSY IN INDIA, A RESEARCH QUESTION?

Dr. Hemanta Kumar Kar, Professor and HOD, Dermatology, KIMS, Bhubaneswar and
Dr. Abirami C, PG resident, Dermatology, KIMS, Bhubaneswar

Introduction: There is hardly any reduction of number of lepromatous leprosy cases in most of the tertiary care hospitals of India since last 10 years. Additionally, Covid pandemicity has further reduced the NLEP activities in last one year adding the figure more. Odisha is not an exception where I am presently working. In last few months we are registering more and more number of untreated LL cases including histoid leprosy patients. This is alarming and prompted us to speak to this august gathering. Because of high bacterial load transmission of bacilli is considered highest from a case of untreated LL (8 to 10 times in MB and 2 to 4 times in PB). It is now the time to study scientifically through multi-centric operational research projects using a uniform protocol to find out the prevalence of LL, cause of late detection of LL and associated risks on transmission in community. This will help to redesign our NLEP program to pick up all early LL cases clinically and through reintroduction of slit smear examination.

Discussion: The proportion of cases with lepromatous leprosy, among the total number of leprosy cases was one of the indicators used in pre-MDT era when the definition of MB case was different. Wide geographical differences were observed in the proportion of MB/LL cases across the world, ranging from 5-70%. With serial change in definition of MB cases in last two decades, the lepromatous rates of pre-MDT era is no longer relevant. With increase proportion of MB cases associated with no further rapid decrease in prevalence of leprosy in last 10 years, WHO and country program managers have to rethink the importance of LL "how to detect them at the earliest", might be the major hindrance to achieve our goal " Zero leprosy" NLEP have introduced pronged strategy for early detection of leprosy patients albeit lepromatous cases e.g. LCDC in line with pulse polio campaign in high endemic districts along with SDR to contacts, focussed leprosy campaign for hot spots of low endemic districts and case detection in hard to reach areas.

It is now time to involve more NGOs and all dermatologists of the country to organise active door to door survey at least 3 to 6 monthly once to detect all suspected cases of leprosy, including LL cases which remains undetected by normal way of detecting leprosy with field staff. Intensity and physical distance from an index LL cases were directly associated with increased risk of developing leprosy among susceptible population. Population with high risk need highly potent immunoprophylaxis or PEP++ under research. Presently available vaccine should continue for highly BI positive LL cases as immunotherapy and immunoprophylaxis for their contacts.

The IAL and the IADVL members may design a hospital based epidemiological study to find out annual new case detection of untreated lepromatous leprosy patients in Dermatology clinics of tertiary care hospitals. Similarly, the NLEP program manager may initiate an operational based research project to evaluate risk of transmission among contacts of undetected or lately detected LL cases diagnosed in tertiary care hospitals.

Conclusion: Based on the outcome of these above studies NLEP can modify its approach to pick up LL cases as early as possible utilizing more than 12,000 dermatologists for active house to house search 3

to 6 monthly once as done in polio vaccine drive in the community. NGOs are the biggest assets for this type of activities in NLEP. This way, we can march towards **ZERO LEPROSY IN INDIA.**

Some of recently detected LL and histoid cases in last 3 months in our department will be presented at onset to emphasize the importance of our propositions.

12.15 -1.30 pm :

PLENARY SESSION III: WORKING TOWARDS A LEPROSY-FREE WORLD

Chairpersons: Dr. Kiran Katoch & Dr. Mrudula Save

12.15 – 12.35 (20 min)

ILEP STRATEGY FOR A LEPROSY-FREE WORLD

Dr Ashok Kumar Agarwal, Country Director, NLR India and ILEP India Coordinator

Introduction: Leprosy is far from over. 116 countries reported 202,000 new cases in 2019; every 2 mins a new case is diagnosed; almost 15,000 children get infected every year; 6 million people affected by leprosy have disabilities; and 130 laws are discriminatory. Large number of new infections are still occurring in a >4000years old disease .

ILEP strategy : Ourthree strategic approaches are: work more effectively together, work more effectively with others, and increase the profile of leprosy.

Working collaboratively together : Collaboration between members has continued to be at the heart of ILEP. Conferences on operationalising 'triple zero' (2016), social inclusion (2017), innovative digital applications (2020) and retaining leprosy expertise (2020) have brought together a wide range of participants: the 2020 conferences involved almost 200 people from 38 countries. The ILEP Technical Commission, published the Stigma and Mental Wellbeing Guides in 2020. Several ILEP members have together engaged in the Leprosy Research Initiative, Infolep, InfoNTD, and Leprosy Review (journal).

Working effectively with others : ILEP engages with the WHO Global Leprosy Programme, WHO Neglected Tropical Diseases unit and WHO regional forums. ILEP is a co-founder and cornerstone partner of the Global Partnership for Zero Leprosy. ILEP is active in the Neglected Tropical Diseases NGO Network (NNN) and the International Disability and Development Consortium (IDDC). The ILEP Advisory Panel, consisting of women and men with personal experience of leprosy, has strengthened the 'voice' of persons affected by leprosy.

Raising the profile of leprosy : Factors like stigmatisation, misleading statements about 'elimination', inadequate focus on post-treatment disability and weak grasp of the dire human rights consequences of leprosy have contributed to the low profile of leprosy. ILEP engages with the Office of the UN High Commissioner for Human Rights; advises, coordinates, and writes submissions to the Committee on the Rights of Persons with Disabilities. ILEP manages the world's leading database of legislation that discriminates against leprosy and, through advocacy, has seen reduction in the number of laws.

12.35 – 12.55 (20 min)

UTILIZING ASSISTIVE TECHNOLOGY TO IMPROVE FUNCTIONALITY IN LEPROSY

Dr. Patanjali Dev Nayar, Regional Adviser-DPR, WHO- SEARO

Disability, including due to Leprosy, is **the result** of the interaction between the medical condition of the person person and the environment. People are disabled in and by their environment. **Technology is an environmental factor, a facilitator or a barrier.**

There are many kinds of impairments in leprosy that require rehabilitation. The basic concepts for rehabilitation of persons affected with leprosy focus upon restoring back to normal the social life or as near as possible. It requires greater efforts than the rehab in other types of disabilities. Assistive Technology (AT) is one way to strengthen rehabilitation of persons with leprosy.

Re-ablement in Leprosy by AT minimizes handicaps due to permanent disabilities and dehabilitation of patient. Adaptive Devices allow the person to perform many activities independently. As not all patient could benefit from RCS (Reconstructive Surgery) and some refuse RCS, AT comes in very handy to improve functionality. Adaptive equipment serves as an end in itself or for some until surgery has been performed and help increase confidence and self-esteem. Use of AT can also help overcome stigma to some extent. There are a plethora of AT devices that could improve functionality and cosmetic look of persons with leprosy.

There are many challenges related to utilization of AT for leprosy. Stigma and discrimination lead to unmet needs for AT amongst other outcomes. Programs focus on drugs and NOT on AT devices. There is, due to multiple reasons including costs, limited access to AT products. Lack of awareness on the part of the afflicted persons as well as providers -are equally important. Research and innovation too are required

World Health Assembly (WHA) in 2018 adopted are solution 71.8 that Urges Member States amongst other things “to develop, implement and strengthen policies and programmes, as appropriate, to improve access to assistive technology within universal health and/or social services coverage”. Leprosy programs could leverage and benefit from the WHA resolution.

It is recommended that Member states review the Leprosy program activities and incorporate access to AT products for persons with leprosyat either no cost or subsidized costs.

12.55 – 1.30 (35min) Panel Discussion :

Moderator - Dr. Sunil Dogra

Panellists - Dr. Kumaresan Kuppusamy / Dr. Jerry Joshua / Dr. Rajan Babu / Dr. Antony Samy / Dr. Gitanjali Saha

INVITED FACULTY LECTURES

INVITED FACULTY LECTURES

FRIDAY, 16TH APRIL 2021

HALL A (e-Conf.)

02.00 – 03.00 PM

CHEMOTHERAPY INCLUDING NEW REGIMENS

Chairpersons: Dr. Santanu K Tripathi & Dr Udaya Kiran

02.00– 02.15 pm

MANAGEMENT OF MULTIBACILLARY LEPROSY PATIENTS WITH HIGH BI

Dr Tarun Narang MD, MNAMS
Associate Professor, Department of Dermatology, Venereology and Leprology, PGIMER, Chandigarh, India

Patients with high bacillary index (BI) are probably the single most important reservoir of leprosy transmission and should never be missed, or under-treated. Adequate management of these patients is crucial for success of our dream of a Leprosy free world.

WHO fixed duration multidrug therapy (MDT) for 12 months may not be adequate for patients with high bacillary load as these patients continue to harbour live bacilli even after one year of MDT and continue to suffer from reactions and recurrences. These patients especially the polar lepromatous leprosy are anergic and may relapse or get reinfected if they are released from treatment after one or two year of treatment.

An ideal approach in these patients would be prolonged MDT till smear negativity but that is not practical as it may compromise the compliance, hence we need approaches like intensive therapy initially or immunotherapy with vaccines like BCG and MIP along with MDT. We can also give alternate leprosy treatment with potent bactericidal drugs like clarithromycin, minocycline and ofloxacin or moxifloxacin to patients who show clinical or microbiological non responsiveness to WHO MDT. Contact tracing and treatment of contacts with chemotherapy or immunotherapy is an important part of management of these patients. Prolonged therapy with monthly doses of rifampicin, ofloxacin and minocycline may also be an effective way to prevent relapses and recurrences in this subset of patients.

All these interventions have to go hand in hand with socio-economic upliftment and improvement in standard of living for achieving a target of ZERO transmission of Leprosy and eventually a leprosy free world.

02.15 – 02.30 pm:

NEWER DRUGS AND REGIMENS IN THE TREATMENT OF LEPROSY

Dr. VV Pai, Wakade Anju,
Bombay Leprosy Project, 11, Vidnyan Bhavan, V. N. Purav Marg, Sion-Chunabhatti, Mumbai

Introduction: Chemotherapy of leprosy has undergone a sea change over the past five decades. Elimination of leprosy using chemotherapy based on WHO standard Multi Drug Therapy (MDT) regimen has been achieved at National level in most leprosy endemic countries but still needs to be achieved at sub national level. There is a strong need for development of newer drugs reasons being longer duration

of current treatment for MB leprosy, two of components of MDT regimen are weakly bactericidal, administration of daily components is unsupervised, patients who cannot tolerate any of drugs or resistance to current regimen need safer and effective treatment intervention.

Newer Chemotherapeutic agents in leprosy: To improve the efficacy of treatment, several newer drugs are under investigation like Fluoroquinolones, Tetracyclines, Macrolides, Ansamycins, Beta lactam antibiotics, Thiomides, Bedaquiline, Pretonamid, Epiroprim.

Alternative treatment regimens: Moxifloxacin has been shown to be most powerful bactericidal agent against M leprae. Clinical trials in leprosy using combination of Moxifloxacin 400 mg, Rifampicin 600 mg and Minocycline 200 mg and Clofazimine 300mg (MRM) and (MRMC) all drugs administered once monthly under supervision were reported for first time by R Ganapati et al (2009). In continuation of investigation by Pai et al (2019) reported on open ended observational comparative study on selected sample of 290 multibacillary patients of which 145 smear positive patients with MRM administered once monthly for 12 months compared with 145 smear positive patients with MRMC for 12 months. This group received daily Clofazimine 50 mg for 12 months. Clinical, bacteriological and neurological assessments were done. Same regimen was given for six months in 174 PB patients.

Results: It was observed that 52 (35%) of patients had reaction in MRM group while 57 (39%) had reactions in MRMC group. In PB group 6 (4%) of the 174 patients and 5 (12%) of 53 smear negative MB patients of MRM and 16.2% in MRMC group had reactions. Early and good clinical improvement seen in both PB and MB leprosy. Long term observations n progress to study relapses.

Conclusion: Newer drugs and regimens hold great promise but needs to be carefully observed from long term point of view to study every aspect and efficacy. Further research is required to find a new drug regimens and immunotherapy capable of eradicating persisting organisms as well as M leprae derived antigens causing clinical events and nerve damage.

Rarely, it may be considered advisable to treat a patient with a high bacillary index (BI) for more than 12 months. This decision may only be taken by specialists at referral unit after careful consideration of the clinical and bacteriological evidence. (Operational guidelines for DPMR, NLEP,2012)

02.30 – 02.45 pm

REINFECTION, ENL, TRANSMISSION - CHALLENGES IN DIAGNOSIS AND MANAGEMENT OF LEPROMATOUS PATIENTS

Joel Almeida, PhD, MBBS, MBA., Director, BBJ Consultancy, India & UK

Patients with an initial high BI have had to make do with only 12 monthly doses of MDT since 1998. A significant proportion of such patients have anergy, unresponsive to even powerful immunotherapy such as MIP vaccine. Reinfection of such anergic polar LL patients increases painful ENL neuritis among them, while maintaining a major source of transmission to children and others. Such patients require special attention.

a) Prolonged duration of anti-microbial protection to prevent reinfection or other recurrence
b) Affordable highly effective anti-microbial regimens

Further, sources of reinfection in hyperendemic areas need to be reduced.

c) Mass multi-drug administration at regular intervals (eg., Rifampicin + Ofloxacin + Minocycline) achieved a 92% reduction of new cases among those who received a dose vs those who did not. 90% fall in new cases was demonstrated within 2 years.

Accordingly, if such measures are combined with integrated skin camps featuring good clinical expertise, India can reduce transmission rapidly. There is no need for Indian children to suffer this disease.

02.45 – 03.00 pm: Open forum – Dr. Santanu K Tripathi

03.00 – 04.00 PM

CHEMO & IMMUNO-PROPHYLAXISOF LEPROSY

Chairpersons: Dr. Binod Khaitan & Dr. Venkata Krishna

03.00 – 03.15 pm

SINGLE DOSE RIFAMPICIN (SDR): FIELD EXPERIENCES OF NLEP

Dr Megha Pravin Khobragade, Assistant Director General (Leprosy, Mental Health and Patient safety) , Directorate General Health Services, Ministry of Health & Family Welfare.

Dr. Neeraj Dhingra, Director NVBDCP and Deputy Director General (Leprosy), Directorate General Health Services, Ministry of Health & Family Welfare.

Background: Leprosy elimination was achieved at the national level in 2005. Under NLEP constant steps are being taken to eliminate leprosy at sub-national level. But, a very slow decline in leprosy incidence suggestive of ongoing transmission of Mycobacterium Leprae has been observed. To reduce the transmission, contact tracing of index patients and Single Dose of Rifampicin (SDR) as Post Exposure Prophylaxis for contacts are being administered. Expert group of ICMR recommended implementation of chemoprophylaxis in programmatic mode in 163 districts identified for conducting Leprosy Case Detection Campaign (LCDC).Identified Contacts of all new cased detected in campaign was administered SDR.

Single Dose Rifampicin (SDR)

Inclusion criteria:
A person who has been living/working/having social activities with a newly detected case of leprosy for more than three months and 20 hours/week in the last 1 yr. a person age more than 2 year are eligible to take SDR.

Exclusion Criteria:
The following group of people are not suitable to take SDR
Pregnant women (PEP can be given after delivery).
People receiving rifampicin therapy for any reason in the last two years (e.g. for tuberculosis [TB] or leprosy treatment, or as a contact from another index case).
People with a history of liver disorders (e.g. jaundice) or renal disorders.
People who have possible signs and/or symptoms of leprosy or TB.

Dosage of Rifampicin for post exposure prophylaxis is as follows above 15 year age 600mg, 10 to 14 year age 450mg, 6-9 years age(weight more than 20kg) 300mg and children less than 20kg (more than 2 years) 10-15mg/kg.

Discussion: Many challenges are observed in the field level to implementation of Single Dose of Rifampicin as post exposure prophylaxis. Issues of: Logistic, Training, Migration of contacts. Indentifying contacts and convincing them to take SDR. However, NLEP is implementing the SDR with effective measures like Rifampicin procurement getting streamlined, budget provision have made for States. Community support and acceptability is satisfactory. Special approaches being adopted for Hard to reach area, tribal, slums, urban pockets and hilly area. Detailed reporting, monitoring and supervision are being done.

03.15 – 03.30 pm

POTENTIAL ROLE OF MIP, SDR & PEP++ IN PREVENTING LEPROSY

Dr. Santoshdev P Rathod, Professor of Dermatology,
Smt. NHL Municipal Medical College, Ahmedabad

Chemoprophylaxis with single dose rifampicin (SDR) & enhanced chemoprophylaxis program (PEP++) along with immunoprophylaxis with Mycobacterium Indicus Pranni (MIP) vaccine are important targeted interventions to prevent leprosy. In this short talk, I shall summarize the evidence for use of these interventions in prevention of leprosy. Brief mention of practical hurdles, possible adverse effects and limitations of the individual approach shall also be discussed.

Epidemiological studies have shown that the chance of finding a previously undiagnosed leprosy patient is ten times higher in household contacts of leprosy patients than in the general population. A randomized control study has shown that chemoprophylaxis with single dose rifampicin (SDR) has a 57% overall risk reduction in preventing the development of leprosy for household contacts during the first 2 years after its administration. Ideally, disease control is best obtained by an effective vaccine. BCG vaccine, although imperfect, is used globally, with 85% of the world's infants receiving it.*It has been hypothesised that if national programmes gave one dose of rifampicin and BCG to asymptomatic contacts, it would prevent many potential cases and reduce ongoing transmission.

Conclusion:A combined chemo- and immunotherapeutic approach in a post-exposure setting could provide immediate impact by preventing disease and transmission.

03.30 – 04.00 pm: Open Forum

04.00 – 05.00

REACTION, NERVE DAMAGE & POD

Chairpersons: Dr. Archana Singhal & Dr. VV Dongre

04.00 – 04.15 pm

CHALLENGES IN THE MANAGEMENT OF TYPE 1 AND TYPE 2 REACTIONS

Dr. Joydeepa Darlong

Leprosy reactions are immunological phenomena with inflammatory episodes that occur before, during or after the completion of multi-drug therapy (MDT). Type 1 reactions (T1R) and erythema nodosum leprosum (ENL) are 2 distinct conditions that occur separately but may arise at different times in the same patient and together they may affect 30-50% of all leprosy patients. They contribute immensely to the burden of leprosy and need to be diagnosed and treated early to prevent nerve function impairment and permanent disability.

The management of reactions remain highly problematic for the clinician because of several factors. Diagnostic challenges result in delayed treatment. Concomitant progressive neuritis is often missed resulting in irreversible deformities. Lack of expertise in detection and monitoring with poor referral mechanisms are a concern. The recurrent nature of reactions is also a problem because it leads to dependence on immune suppressants, promoting default, doctor shopping, self-medication, increased morbidity, and mortality.There is also a huge financial burden on the patient when they go seeking treatment in various health facilities. Availability of resources in the form of inpatient care, adequate investigations, medications, and management of morbidities is a major deterrent for clinicians. Newer medications like monoclonal antibodies, thalidomide analogues are expensive. Few centres provide tertiary care and patients must travel long distances to avail them which could be compounded with the stigma associated with the disease.

Prevention and control of leprosy complications is critical and issues which pose such challenges need to be addressed in a contextual manner. To meet these challenges building a strategy on case management maintaining high quality of care and preventing drug resistance,building human resource capacity, improving diagnosis, and fostering operational research around reactions and neuritis could be the healthcare priority in our country.

04.15- 04.30 pm

IS THERE MORE TO RECONSTRUCTIVE SURGERY IN LEPROSY THAN TENDON TRANSFERS?

Jerry Joshua, Director, Schieffelin Institute of Health research and Leprosy Centre, Karigiri

Reconstructive surgery in leprosy has been practiced since the 1950s, ever since Dr.Paul Brand, started operating on people with deformities due to Leprosy in Vellore and Karigiri.

Till then surgery in leprosy involved debridement and amputations and very little reconstruction. With the incorporation of tendon transfer surgeries in leprosy, many surgeons have been trained in correction of common deformities seen in leprosy and others have taken it on, to correct the more complex deformities seen in hands and feet.

Since then, correction of the deformity of the nose, salvage of disintegrating limbs with arthrodesis, salvage of hands and feet with soft tissue loss due to ulceration and disintegration and also salvage of function of the mitten hands have all been possible and done with varying degrees of success.

In India, around 3000 reconstructive surgical procedures are done each year. More than 2500 of these procedures are tendon transfers as most surgeons and administrators and physiotherapists think that “reconstructive surgery” or “RCS” in leprosy is “tendon transfers”.

Ulcers are a more common problem in leprosy and many patients undergo debridement procedures, but very few undergo procedures that reconstruct lost tissue in the feet and hands.Many patients do not undergo procedures other than tendon transfers as surgeons trained in reconstructive surgery in leprosy do not undergo training in such other procedures. They are not trained to reconstruct lost tissue.

To enable poor patients to afford spending time to get their deformities corrected, the government has set aside some remuneration for them to cover the loss of income due to time spent in the hospital.

Patients undergoing such “other” reconstructive surgical procedures, do not get the remuneration due to them, because the programme administrators are not aware that these procedures also come under the list of reconstructive surgery procedures. They only facilitate payment of money for tendon transfers.

We need to incorporate these “other” procedures into the training of reconstructive surgeons and also sensitise the administrative staff concerned.

04.30 -04.45 pm

ROLE OF PHYSIOTHERAPY AND OCCUPATIONAL THERAPY IN PREVENTING AND MANAGING NFI IN LEPROSY

Mr. Karthikeyan G, Occupational therapist, Research Coordinator, The Leprosy Mission Trust India; PhD student, Warwick Centre for Global Health, University of Warwick.

Leprosy is a leading cause of disabilities among infectious diseases and it mainly affects peripheral nerves and skin. The nerve damage can lead to permanent impairments requiring lifelong care if they are not identified early and adequately cared. It is estimated that over one million people are living with disabilities due to leprosy worldwide and annually approximately 30% to 40% of newly diagnosed patients develop nerve damage are added to that pool.

Physiotherapy and Occupational therapy (PT/OT) play a major role in prevention and management of nerve function impairments in leprosy to minimize its consequences. Their role includes management of neuritis/early paralysis, irreversible paralysis of motor function, insensitive limbs, ulcer care, tendon transfer surgery, functional training of limbs and provision of special aids.

Services provided in leprosy include but not limited to nerve palpation, nerve function assessment, provision of a cast/slab for resting of limbs with neuritis, use of physical modalities (i.e., wax bath, electrical stimulation),exercises to prevent joint contractures and improve muscle strength, self-care teaching, application of plaster casts, splints and special aids to promote functional activities. PT/OT are integral part of pre and post-operative management of tendon transfer surgeries for deformity correction. The successful outcome of the tendon transfer surgery depends on therapist’s involvement from, pre-operative therapy to functional training of the limb after surgery. Given the lack of availability of Podiatrist in the leprosy centres, therapists also perform assessment of foot and identify foot at risk of further damage and provide appropriate care.

The special aids (assistive devices) can significantly minimize the functional limitation of people with disabilities due to leprosy but they are underused due to lack of expertise. There has been an advancement in the therapy protocol for tendon transfer surgery for deformities of hands, in promoting adherence to self-care, in identifying limbs at risk of neuropathic ulcers and provision of customized footwear. There is a need to add more evidence to effectiveness of Physiotherapy/Occupational therapy through quality research in prevention and management of nerve function impairments in leprosy.

04-45 – 05.00 pm: Open forum

05.00 – 06.00

INTEGRATION OF LEPROSY WITH NTD’S

Chairpersons: Dr. Mary Verghese & Dr. Rashmi Shukla

05.00 – 05.15 pm

MOLECULAR DIAGNOSIS OF LEPROSY AND OTHER NTD's: THE JALMA EXPERIENCES"

Dr D S Chauhan, Scientist- E & Head Department of Microbiology & Molecular Biology, ICMR-National JALMA Institute for Leprosy & other Mycobacterial Diseases, Agra

Over the past year, the headlines have been dominated by COVID-19. It is easy to overlook other diseases; especially a disease such as leprosy that many people think is a disease of the past. But leprosy requires our attention. There are still some 200,000 new cases diagnosed worldwide each year. 45 countries reported 0 cases and 33 reported < 10 cases. On the other end of the spectrum, 16 countries reported > 1000 new cases. India accounts for more than half of the new cases detected globally, followed by Brazil (14%) and Indonesia (9%). Important issues for research in leprosy remains related to diagnosis, treatment, transmission and operational management.Diagnosis continues to be a challenge due to the low sensitivity of the conventional methods, not possible to culture the bacillus "in vitro" so far.The disease can cause skin symptoms like discoloured patches, usually flat that may be numb and look faded, thick stiff or dry skin, painless ulcers on the soles of feet, painless swelling or lumps on the face or earlobes, loss of eyebrows or eyelashes. Symptoms leads to damage the nervesincludes numbness of affected areas of the skin, muscle weakness or paralysis,enlarged nerves (especially those around the elbow and knee and in the sides of the neck) and eye problems that may lead to blindness (when facial nerves are affected).

Current challenge in leprosy diagnosis: In clinical practice, the diagnosis is mainly based on the observation of clinical symptoms and supported by bacteriological analysis. A negative AFB test only indicates that the concentration of bacilli is below 10,000 bacilli/ml, and this does not necessarily mean that the person is not infected. On the other hand, with microscopic visualization all mycobacteria are phenotypically indistinguishable. Serological techniques commercially available are inconclusive.Scope of molecular tools in leprosy diagnosis relies on early detection and diagnosis, prognosis and management and provide quantitative information (bacterial load), high sensitivity & specificity.Many of the methods used in the diagnosis of other mycobacterial infections are not available in leprosy. Research for the development of new diagnostic tools is particularly complicated since the only sources of bacteria are leprosy patients and a natural reservoir, the nine-banded armadillo (*Dasypusnovemcinctus*). Thus studying defined infections in mouse and armadillo models can provide insights into the host-pathogen interactions involved in this complex disease.

Future of molecular tools in leprosy diagnosis: Surveillance of household contacts of leprosy patients favors early diagnosis of the disease. Semiautomatic, large-scale, cost-affordable quantitative PCR (qPCR) could be used to screen high-risk contacts and indicate chemoprophylaxis and can be used to diagnose leprosy in difficult-to-diagnose cases such as pure neural or atypical skin clinical presentations. In the past 30 years, definitive identification of *M. leprae* has been possible through PCR. Williams and colleagues first time established a procedure for detecting *M. leprae* DNA in infected tissues in 1990. In the early 1990s, radioactive probes were required to increase PCR sensitivity hence to overcome problems inherent to radioactivity, nonradioactive probes were developed. In clinical practice, PCR is very useful in detecting *M. leprae* DNA in nerve specimens that have been shown to be bacteriologically negative by other methods of detection. Jardim and co-workers (2005) demonstrated that *M. leprae* infection in PNL cases is diagnosed most often by PCRand is being used as a confirmatory and diagnostic routine tool in difficult-to-diagnose cases such as PNL. PCR could be of immense help for dermatological differential diagnosis in hypochromic or granulomatous lesions, different gene targets (Ag 85B, sodA and 16S rRNA, and repetitive sequence i.e RLEP) have been used for this purpose. Molecular methods described by several authors

(*Hartskeerl et al 1989,* Woods & Cole 1989,*Williams 1990 ,*Plikaytis 1990, Rastogi et al1999, Roth et al 2000, Donoghue 2001, *Martinez et al 2006*, Katoch et al 2007, Lawania et al 2005, 2008,Edwards et al 2014,amplifying different gene encoding specific antigenic proteins by c PCR with a sensitivity limit up to a single bacteria in sample are being used for diagnosis of leprosy. Authors have also developed their methods based on amplification of specific repetitive sequences of *M. leprae* (RLEP region, as a PCR target, provides the advantage of higher sensitivity because it is present at multiple sites in the genomic DNA, especially, in clinical samples, with low concentration of bacilli and/or degraded genomic material.

Lead Role taken by JALMA: *Department of Microbiology & Molecular Biology established by Dr V M Katoch at JALMA had been pioneer in the validation of indigenous PCR methods and also developed several molecular tools for diagnosis of mycobacterial diseases and actively involved in the genomics of M.leprae. Our lab had developed an indigenously DNA chip identified 11 genes associated with metabolic pathways and these possibly played an important role in virulence mechanisms which have been identified to be over-expressed in the human host. The genotypes of circulating strains using microsatellite and other markers have also been studied at JALMA and it has been observed that most strains prevalent in that area belong to ancient Indian variety with a small proportion being of Japanese/Korean type of strains Lavania et al 2005, 2008.*

JALMA Model for changing priorities:A multi centric drug resistance surveillance was done by Dr Kiran Katoch and her group at Model Rural Health Research Unit at Ghatampur and no MDR case was observed. Another group of Prof N K Mehra from AIIMS New Delhi did work on cytokine gene polymorphism, toll like receptors, NOD etc. giving new insight about disease. Neurophysiological work had also been done to understand the process of nerve involvement/ damage in leprosy vs other peripheral neuropathies. The Institute has proposed the concept of common regimen for PB and MB which is evaluated by WHO in a multi-centric/ multi-country trial as an uniform MDT. Overall, the excellent sensitivity and specificity of PCR suggests the technique may be useful and presents an advantage over conventional methods for the early diagnosis of leprosy especially in difficult clinical cases with few bacilli, such as pure neural leprosy, indeterminate and paucibacillary leprosy but has its limitations for detecting the viability of the bacilli. In leprosy, early diagnosis is essential and molecular techniques have emerged as a support of the conventional methods for the analysis of clinical samples.

05.15- 05.30 pm

WIDENING HORISON OF LEPROSY: NEGLECTED TROPICAL DISEASES ROADMAP 2021-2030 AND INTEGRATION

Dr. Chandrakant Revankar, Public Health Medical Consultant, Elimination of Neglected Tropical Diseases. India

Currently, 20 diseases (including leprosy) are listed as neglected tropical diseases (NTDs) which affect more than a billion people in the world. These diseases mainly affect low-income people. To further accelerate the interventions to overcome global impact of NTDs, WHO has recently launched the roadmap for Neglected Tropical Diseases (NTD) 2021-2030 setting the disease specific targets to be achieved aligning with Sustainable Development Goals (SDG 2030) and Universal Health Coverage so that no one left behind by 2030! Leprosy is targeted for Elimination i.e." Interruption of transmission" in 120 countries by 2030.

The current roadmap advocates breaking “siloes” and moving towards integration. This has opened several opportunities to accelerate leprosy case detection, MDT and disability prevention and care services by integrating across other relevant NTDs programmes (e.g., Lymphatic filariasis MDA and MMDP) as well other cross-sectoral activities (e.g., WASH strategy).

The NTD roadmap2030 highlighted on integrated strategy for Skin-Neglected Tropical Diseases (Skin NTDs) control since eight (including leprosy) or more NTDs mainly present with skin lesions/skin diseases to start with. (e.g., leprosy, lymphatic filariasis-lymphoedema, cutaneous leishmaniasis, mycetoma, scabies, yaws etc.). It is expected that integrating leprosy elimination activities with other Skin NTDs will enhance case detection, treatment delivery, deformity care and reduction in stigma and increase in community response. This approach also will address sustainability of the activities (e.g. surveillance, expertise and care services) beyond elimination phase in a given endemic country.

05.30 -05.45 pm

INTEGRATING LEPROSY WITH NTD’S: BENEFITS & CHALLENGES

Dr. Parul Verma
Associate professor, DVL, King George’s Medical University, Lucknow, U.P

Leprosy is one of the most important neglected tropical skin diseases (NTDs) in India, others being Mycetoma, cutaneous leishmaniasis, Post-kala-azar dermal leishmaniasis, scabies, lymphatic filariasis, fungal infections and Buruli ulcers. India adds 60% of new leprosy cases globally a year. Continuous efforts made at national and international level has led to a state where it is eliminated as public health problem in India. As new cases keep on emerging in large numbers its effective control remains a challenge. All the NTDs along with Leprosy are associated with significant morbidity. Integrated approach towards varies skin NTDs may have various opportunities like better use of resources and manpower and better reporting. At the same time we may face various challenges like adequately training the staff, dilution of the specific work done for leprosy and redistribution of the resources. Leprosy control requires better case detection, treatment, awareness and monitoring. Whether it can be combined with few or all NTDs needs proper planning, health infrastructure and research work.

05-45 – 06.00pm - Open forum

HALL B (e-Conf.)

02.00 – 03.00 PM

PATHOLOGY & IMMUNOLOGY

Chairpersons: Dr. S Aparna & Dr. Sundeep Chaitanya

02.00 – 02.15 pm

GENOMICS & MOLECULAR EPIDEMIOLOGY OF LEPROSY: current status

Dr Pushpendra Singh, Scentist-e,
ICMR-National Institute of Research in Tribal Health, Jabalpur, MP

Leprosy is caused by uncultivable pathogens *Mycobacterium leprae and M. lepromatosis. Nearly 200,000* leprosy cases are recorded globally each year. The full understanding of mechanisms and dynamics of leprosy bacilli transmission still remains elusive.

Using Next Gen Sequencing for whole genome comparisons, a reliable SNP-genotyping scheme has been developed that shows excellent association with geographic origins of *M. leprae* (**Nature Genetics 2009, NEJM 2011**). However, segregation of *M. leprae* DNA from the host genomic material is a major pre-requisite to obtain sufficient coverage of M. leprae genome which makes it very expensive if done using commercially available synthetic oligos/chips to capture target DNA. Therefore, we have used innovative and inexpensive methods for custom DNA-enrichment allowing capture of target DNA using PCR amplifiable DNA-baits for whole genome coverage of leprosy bacilli. This approach was used for sequencing the first-ever genome of *M. lepromatosis* from a clinical sample. Comparative analysis of *M. lepromatosis* and *M. leprae* revealed that both species have undergone reductive evolution together and diverged around 13.9 million years ago **(PNAS 2015).** A rapid test for detecting *M. lepromatosis* using multicopy template has been recently developed (**Clinical Infectious Diseases 2020**) using these approaches by our team. This approach has been now adapted for capture of *M. leprae* DNA also thereby making it more cost-effective to sequence the genome of leprosy bacilli directly from clinical sample. In our latest studies, the comparative genomic studies of *M. leprae* genomes have led to a simple PCR-RFLP based molecular epidemiological tool for predominant Indian strains without f sequencing.

02.15 – 02.30 pm

IMPROVING THE SPECIFICITY & SENSITIVITY OF PCR DIAGNOSTICS IN LEPROSY

Dr. Madhusmitha Das, Schieffelin Institute of Health- Research and Leprosy Centre, Karigiri

Leprosy remains to be a major health problem in several countries. It is a chronic infectious disease caused by an obligate intracellular bacterium namely *Mycobacterium leprae.* Although the disease burden has declined over the past decades after the introduction of WHO Multidrug therapy (MDT), a total of 114451 new patients were detected during the year 2019–20 in India.

Diagnosis of leprosy predominantly depends on clinical manifestations and histopathological analysis have been facing hurdles, especially in distinguishing latent infection from active disease and diagnosing paucibacillary clinical forms, hampering rapid and accurate diagnostics. PCR has been used and found to be an effective detection tool for the identification of *M. leprae* in various clinical specimens for the past two decades. Different sequences such as genes encoding the 36-kDa antigen, 18-kDa antigen, 65-kDa antigen, complex 85, 16S rDNA, and the repetitive sequences among other M. leprae genes, have been used as targets for PCR. Recently, real-time PCR technology has improved detection, increasing sensitivity and specificity and appears to be a robust tool for identification and quantification of mycobacteria in difficult to diagnose clinical situations.

This paper briefly reviews the recent advances in M. leprae-specific PCR and quantitative PCR (qPCR) tests for early diagnosis of leprosy.

02.30 – 02.45 pm

TRANSLATION GENOMICS & GENETICS; ITS APPLICATION IN LEPROSY

Dr. Itu Singh, Stanley Browne Laboratory, TLM Community Hospital, TLMTI, Delhi

Leprosy is a chronic infectious disease caused by *Mycobacterium leprae* which predominantly affects skin and peripheral nerves. Globally, 2,02,185 new cases were reported with new case detection rate of 25.9/million population in 2019.India has reported 1,14,451 new cases in 2019 contributing to ~57% of total leprosy cases worldwide.

M. leprae genome was successfully sequenced and published in 2001 by ST Cole et al. using *M. leprae* TN strain which was isolated from multibacillary (MB) patient from Tamil Nadu, India then propagated in armadillo to obtain sufficient quantity of DNA for cosmid cloning and whole genome shotgun sequencing using automated Sanger sequencing technology. Analysis of the sequenced 3.27 Mb genome revealed a case of reductive evolution in *M. leprae* with half of the TN genome occupied by ~1,300 pseudogenes and noncoding regions. The genome contains only 1,614 protein-coding genes. These measures could be responsible for its slow growth and obligate parasitism. Later strain Br4923 (grown in armadillo from a MB patient of Brazil) was sequenced, and genome comparison showed over 99.995% sequence identity between both thestrains. Genomic analysis has presented potential justifications for past cultivation failures, like numerous crucial metabolic and stress proteins and enzymes those were either missing or present in the form of pseudogenes. Using these genomic insights, it has become conceivable to design more appropriate study to improve our understanding of the unique biology and pathogenesis of *M. leprae*. Genomic analysis has provided in establishing diagnostic tools, molecular tools for epidemiology, molecular tools for drug susceptibility testing. Till date sequenced strains used were taken from MB cases, genomic investigations from paucibacillary (PB) cases may prove informative for differential pathogenesis between PB and MB. Since, genetic drift between strains is negligible, a new diagnostic tool and new drug for the leprosy bacillus should be effective in all cases.

Infection does not lead to clinical disease rather much of the damage is caused by host's immune response to *M. leprae*. Hence, role of host genetic factors in disease susceptibility could not be ignored. The associations ofHLA-DR, PARK2, 10p13, 6q25-27, 6q21, PACRG, LTA, HLA-DR-DQ, RIPK2, TNFSF15, LRRK2, CCDC122/LACC1, VDR, TLR andNOD2 genes with leprosy had been well documented. Despite the progress made in deciphering the contribution of host genetic variants to leprosy pathogenesis, a comprehensive picturehas not yet emerged.

02.45 – 03.00 pm: Open forum

03.00 – 04.00 PM

CHAMPIONING THE CAUSE OF PEOPLE AFFECTED BY LEPROSY (PAL)

Chairpersons: Dr. Kurian John & Mr Muzaffarullah

03.00 – 03.15 pm

REPEALING DISCRIMINATORY LAWS TO REDUCE STIGMA & DISCRIMINATION

Dr. Sunil Anand, MD, Asia Regional Director, American Leprosy Missions.

This past year, all of us, without any exceptions, experienced the negative impact of the COVID 19 pandemic. Apart from the fear of the disease itself, there were significant accompanying adverse effects especially extreme stigma and discrimination against those who either had the infection or were at the

frontlines caring for those who had the infection. The fear of stigma drove people to hide their symptoms and not access much needed medical attention till it was too late in many cases. For those of us familiar with leprosy and its consequences, there was a sense of déjà vu! Sadly, what we experienced in 2020 due to COVID 19, people affected by leprosy and their families have been experiencing for decades. It's a wakeup call for all of us to do something about this disease that many think does not exist anymore.

Leprosy is a unique and fascinating disease, a multi-dimensional problem and not just a medical one. The fact that leprosy is completely curable with treatment does not negate the stigma and discrimination faced by those affected by it due to the many myths and misconceptions associated with it. This results in social exclusion, loss of livelihoods and denial of rights pushing those affected to the margins of society thus taking away their dignity. The deep stigma and discrimination are reinforced by archaic discriminatory laws leading to basic human rights violations.

There are close to 120 laws in our country, both at the National and the State levels, that are discriminatory towards those affected by leprosy. But the good news is that in the past few years around 20 of these discriminatory laws (both national and states) have been repealed. Though that is encouraging, there are still around 100 laws in existence that continue to perpetuate stigma and discrimination.

The question before us is what should we do to enhance efforts for repealing these discriminatory laws?

03.15 – 03.30 pm

ADDRESSING STIGMA & DISCRIMINATION

Dr. Shiva Kumar

Leprosy is a chronic infectious disease that leads to impairment or complete loss of nerve function and finally end with severe form of disabilities and deformities of hands, feet, and face. Every year, India is contributing more than 50% of the new leprosy cases in the world and contributing nearly 4000 new leprosy cases with visible deformities. Leprosy has always been linked with stigma and it is due to disabilities and deformities is associated with lack of knowledge about the disease. stigma affects many aspects of the lives of people affected by leprosy includingmobility, interpersonal relationships, marriage, employment, leisure activities, and attendance at social and religious functions. Individuals with leprosy have emotional stress and anxiety, which may lead to incomplete treatment or late reporting to Health facility.Persons with stigmatising conditions experience problems in their marriages or difficulties in getting married and in their employment or getting employed. Their community interaction is affected, such as social relationships and friendships. People with the stigmatising conditions may not disclose their condition and delay seeking treatment which may result in the diseases getting worse and increase the risk of complications increase the transmission of the disease in the community.

Strategies for stigma reduction:

1. Community participation in leprosy control
2. Counselling of patients and family members
3. Early diagnosis of NFI and management
4. Medical rehabilitation
5. Socio-economic rehabilitation (SER) programs
6. Repealing of discriminatory laws

Programme should encourage and support community participation in dissemination of following message.

a. Leprosy is a curable disease, treatment is available free of cost and no need to discriminate person affected by leprosy.
b. Programme should strengthen referral system at different levels including private health system for early diagnosis and management of complications to prevent disabilities and its worsening
c. Socio economic rehabilitation through CBR
d. Repealing discriminatory laws at earliest.

03.30 – 04.00 pm:
Panel Discussion –

ROLE OF PAL IN STRATEGY PLANNING FOR ZERO LEPROSY

Moderator: Dr. Kurian John
Panellists: Mr Narsappa (APAL), Ms PK Jayashree, Dr. Manisha Saxena, Dr Sunil Anand, Dr Shiva Kumar & others

SATURDAY 17th APRIL 2021

LEAD TALKS

Hall A

10.00 – 11.00 AM -

EPIDEMIOLOGY & LEPROSY CONTROL

Chairperson: Dr. K A Seetharam

10.00 – 10.15 am

'THE NEW GLOBAL LEPROSY STRATEGY 2021 – 2030'

Dr. Vijay Kumar Pannikar, (Former Team Leader, Global Leprosy Programme, W.H.O.)

Leprosy control strategies have evolved from segregation/isolation to treatment of cases and preventing leprosy among high-risk populations. After almost 40 years of strategies based on early case detection and treatment with MDT, it is clear that we need additional tools to interrupt transmission.

The new global strategy combines case detection and treatment strategy with prevention of leprosy using Single-Dose Rifampicin (SDR) as post-exposure prophylaxis to interrupt/eliminate transmission. This will eventually lead to total elimination of leprosy (zero new case).

However, currently eradication of leprosy is not feasible as zoonotic reservoirs exist in some parts of the world. The new strategy is ambitious and targets are reachable.

11.00AM – 12.00 PM

DIGITALIZATION OF PATIENT RECORDS & CLINICAL LEPROSY

Chairpersons: Dr. Vani Patalay & Col. GK Prasad.

11.00 – 11.15 am

'LEPROSY PATIENTS RECORDS DATABASE (LEOPARD): A PROJECT AIMED AT DIGITALIZATION OF PATIENT RECORDS AT SIVANANDA REHABILITATION HOME, A TERITIARY CARE LEPROSY HOSPITAL'

Dr. Vamsidhar Chaturvedula (Associate Director, Novartis)
Dr. S. Ananth Reddy (Chief Administrator and Reconstructive Surgeon, Sivananda);

Digitizing historical records of patients, and analysing this data, at various healthcare institutes would provide community level insights in to the epidemiology, which would help design effective strategies to eliminate leprosy. Novartis provided support to Sivananda Rehabilitation Home (SRH; a tertiary care charitable leprosy hospital in India) to develop a tool to digitalize 20,000+ historical paper records of patientsand collect the data digitally for all new patients. LEOPARD project is the first-of-its-kind with features capable of developing a 'Leprosy Data Lake'. LEOPARD is built on a real-time cloud based application witha simple user interface and is capable of performing real time data analytics and predictive modelling.This cloud-based tool can be adopted by any leprosy hospital with minimal infrastructure requirements.

Novartis hasprovided support to this project through funding via corporate social responsibility and offered technical expertise through corporate volunteering. Novartis does not have any ownership on the data and database of this project. Due consent has been sought from Sivananda rehabilitation home.

12.00 – 1.00 PM

REACTIONS IN LEPROSY

Chairpersons: Dr. G Manmohan & Dr M Jayanth

12.00 – 12.15 pm

'MANAGEMENT OF CHRONIC & RECALCITRANT REACTIONS'

Dr Sunil Dogra MD DNB FRCP (London), Professor, Department of Dermatology, *Postgraduate Institute of Medical Education & Research (PGIMER)*Chandigarh,

Reactions in leprosy may be classified into three different types, namely, type I reaction seen typically in borderline leprosy, categorized by an increase in cell-mediated immunity and a shift towards the tuberculoid spectrum, type II (ENL) reaction seen in the lepromatous (LL) or borderline lepromatous (BL) types and the less frequent Lucio phenomenon designated as a type III reaction. While type 1 reaction in Hansen's disease is commonly encountered, it can be persistent and refractory to treatment in some patients, the triggers and reasons for its persistence are not well understood even though the immunological milieu and cytokine interplay have been studied. ENL affects about 50% of patients with LL and 10% of BL patients which can be often chronic and recalcitrant. Recurrent ENL is characterized by repeated episodes of ENL occurring after 28 days of stopping treatment for ENL. Chronic ENL is defined as ENL occurring for 24 weeks or more, wherein a patient has required continuous treatment, or any treatment-free period has been 27 days or less. Apart from high bacillary load, drug resistance is also recently identified a risk factor for recalcitrant leprosy reactions. The goals of treatment for reactions are to control inflammation, relieve pain, and prevent further episodes. Numerous treatment options are now available other than the conventional NSAIDs, corticosteroids, high dose clofazimine, Pentoxifylline, colchicine**,**and thalidomide, ranging from immunosuppressives like methotrexate, cyclosporine, oral small molecules like apremilast, TNF-± inhibitors (biologics), tenidap, minocycline, IVIG and immunotherapy (MIP).

4.00 – 5.00 PM

DIAGNOSIS & DIFFERENTIAL DIAGNOSIS

Chairpersons: Dr. Geeta Kiran & Dr Indira

4.00 – 4.15 pm

DELPHI STUDY ON ERADICATING LEPROSY IN INDIA

Dr. K S Baghotia, MD, DNB, MBA (PhD Scholar MLCU, Shillong); Hony. Secretary HKNS; State Leprosy Officer, Delhi and Medical Director, Indira Gandhi Hospital, Dwarka, New Delhi.

PSS RaoMPH, DrPH (Biostatistics), Adjunct Professor, MLCU Shillong; formerly, research Consultant TLM India; LEPRA India; Director SLRTC, Karigiri; Prof. and Head, Dept of Biostatistics, Christian Medical College Vellore. Tamilnadu,India

As India struggles to reach its goal of leprosy eradication, it is essential that every possible help and advice is provided urgently through concerted research from all concerned. Delphi, a powerful management tool, was used to identify the challenges and implementation gaps in NLEP through 12 leprosy experts with their consent, who identified the major challenges such as high leprosy stigma; rural-urban migration of patients; lack of vaccines; weak political commitment and inadequate motivated medical staff. Main Implementation gaps included missed diagnosis, wrong diagnosis and wrong classification; inadequate or incomplete treatment, superficial training regarding self-care, neuritis and side effects of MDT; Inadequate IEC, Poor public contacts, and lack of quality control or supervision. It is concluded that without adequate and trained manpower; effective monitoring & supervision and active participation of the community, the eradication of leprosy in near future will remain only a distant dream.

Hall B

10.00 – 11.00 AM

EARLY DIAGNOSIS / DRUG RESISTANCE / RELAPSE

Chairpersons: DrUtpal Sengupta &Dr. Vanaja Shetty

10.00 – 10.15 am

'ADVANCES IN THE IMMUNOLOGY OF LEPROSY'

Dr. Keshar Kunja Mohanty
ICMR-National JALMA Institute for Leprosy and Other Mycobacterial Diseases,
Dr. M. Miyazaki Marg, Taj Ganj, Agra

Innate immune response is one of the important defense mechanism exhibited by the host against any invaders. Leprosy is the disease in which pathogenesis or protection is mostly dependent on the immune responses. Among various immune effectors, pattern recognition receptors are known to play significant role in innate immune responses and initiating the adaptive immune responses.NOD2 plays a major role in regulation of proinflammatory signalling through NF-kB in response to distinct mycobacterial ligands. Weexplored thedifferential presence of NOD2 in skin lesion of leprosy patients in various clinical forms.Immunostaining was performed on 27paraffin-embedded skin biopsies of clinically diagnosed leprosy patients and variable expression of NOD2 was observed in the biopsies across the spectrum (BT,

BL and LL).NOD2 immunostaining was observed to be significantly higher in LL cases (P= 0.0096) and BL cases (P= 0.0519) than BT cases. A significant positive correlation was observed between bacterial load and presence of NOD2 in lesions of leprosy patients (BI as observed by Fite-Faraco staining of lesional skin biopsies) (r=0.7225, P<0.0001).Positive correlation was also observed between number of lesions on patients at the time of biopsy and NOD2 immunostaining (r=0.629, P=0.0213). Our study shows large amount of NOD2 protein in lepromatous group of patients and positively correlating the NOD2 expression with bacterial load in the skin lesion of these patients. The clinical relevance of these findings needs to be pursued further.

11.00 – 12.00 PM

CURRENT ISSUES IMPACTING LEPROSY CONTROL & COVID 19

Chairpersons: Dr. Putta Srinivas & Dr. N Ramesh

11.00 – 11.15 am

'IMPACT OF COVID ON LEPROSY CONTROL: Experience in a tertiary care hospital in the capital'

Dr Deepika Pandhi. Director Professor,
Dept of Dermatology & STD University College of Medical sciences. Delhi

COVID 19 (Corona Virus disease 2019) that causes a flu like respiratory illness was declared as a pandemic by WHO on 11th March. More than 200,000 leprosy cases per year have been recorded globally since 2008, with India contributing around 60% of cases every year. There is a concern amongst clinicians managing leprosy, that leprosy patientson corticosteroids, e"10 mg/ day or having a total cumulative dose e"700mg, may have an increased chance of acquiring COVID infection as also have a higher risk for development of severe COVID 19 infection during type 2 leprosy reactions. However, as of now, there is paucity of data on impact of COVID 19 on leprosy patients and vice versa. For leprosy affected people, COVID-19 has had a massive impact as all nonurgent hospital consultations and admissions were being discouraged and there was a limited availability of MDT and Clofazimine. As our centre was declared a COVID care hospital, there was a dramatic decrease of 89.6%in clinic attendance anda significant fall in treatment completion between April 2019- March 2020and April 2020-March-2021. Due to the sudden lockdown in March 2020, A MDT (accompanied MDT) drugs could be dispensed only for a few patients.

Further, concomitant infection and stress is a well recognized trigger for leprosy reactions and low drug adherence also increases risk of neuritis and reactions. It is not yet known whether patients on immunosuppressive drugs are at anincreased risk of acquiring COVID 19 infection.However, use of immune suppressants has the possibility of severe manifestations of COVID 19 and therefore there is a tendency towards discontinuation of immunosupressives by patients /dermatologists and also reluctance to start patients on immunosuppression at this time. Indeed, all the 26 patients of type 1 reactions and 23 of type 2 reaction in 2019-2020 period either defaulted or had additional therapy stopped and were receiving only MDT by their local practitioner. 5 patients on thalidomide also had no access or could not afford the drug. In addition, all elective re constructive surgeries were deferred causing a negative impact on quality of life. The shifted priority toward COVID-19 responses has created a gap in health service needs for leprosy patients. This highlights that utilisation of tele-dermatology to its fullest capabilities, use of electronic media to communicate key messages to patients and networking with all stakeholders is the need of the hour. Initiation of registries reporting treatment outcomes will help in synthesizing effective disease management strategies.

12.00 – 1.00 PM

SOCIAL ASPECT OF LEPROSY

Chairperson: Dr. Mohan Sain Mathur

12.00 – 12.15 pm

'EFFECT OF MIGRATION ON LEPROSY CONTROL IN INDIA'

John Kurian Varghese

The project proposes to develop a comprehensive understanding of the issues surrounding migrant leprosy patients and their households through a three-year pilot in four locations in India. This understanding will help to highlight issues of the migrating leprosy patients. In order to address these issues, recommended policy guidelines will be developed along with a data framework for the National Leprosy Eradication Program (NLEP) so that leprosy management in India which promotes inclusion and 'health for all' includes the migratory leprosy patient population.

This project also has significant relevance since currently the leprosy program does not have second line treatment for patients who develop drug resistance to Multi Drug Therapy (MDT) due to discontinuity in treatment as a result of their migratory nature. The project will be able to highlight the extent to which migrating patients are discontinuing treatment, and thus attempt – highlight the need and benefit of having a second line of treatment as well as help NLEP reduce the instances in which it is required.

Project Goal:

To undertake a three-year pilot to understand the impact of migration among people affected by Leprosy and its consequences on treatment and other health seeking behaviour in four states in India.

Project Objectives:

1. To define and describe migration in India among leprosy patients and their households.
2. To study the availability, access and delivery of treatment among migrant leprosy patients at the source, along the route as well as at the destination of migration.
3. To understand impact of migration of leprosy patients and their households on new case detection and disease transmission in the source and destination states in India.
4. To influence the NLEP policy and program design related to management of migrant leprosy patients and their households through evidence-based recommendations.
5. To develop and provide a MIS framework for migrant leprosy patients to NLEP which facilitates design of a technology-enabled module to allow location- based tracking of a leprosy patient and his/her household from the point of diagnosis to the point of release from care.

Project Area:

The project will be implemented in Uttar Pradesh (UP), Bihar, Delhi and Chandigarh. In 2018, as per World Health Organization (WHO) and NLEP Annual Report 2018, UP and Bihar, located in the northern part of India, contributed to 32% of the new cases detected in India, which is 19.5% of the new cases detected globally in 2018.

Impact:

It is expected that project will contribute towards enabling a leprosy management program in India in which no one is left behind for leprosy diagnosis, treatment or care because he/she or a household member has a migratory life.

4.00 – 5.00 PM

DISABILITY & REHABILITATION

Chairpersons: Dr. VH Jadav &Dr.Neela Shah

4.00 – 4.15 pm

'RECONSTRUCTIVE SURGERY (RCS) & REHABILITATION'

Dr. Atul Shah, Consultant Plastic Surgeon, Nanavati Hospital, Mumbai, President, The Research Society, GMC & JJH

Reconstructive surgery includes making the patient fit for surgery through physiotherapy beforehand and more so after the surgery to get best possible outcome. Surgery is being undertaken for prevention of deformity like nerve decompression or for diagnostic purpose like nerve biopsy or therapeutic purpose like evacuation of nerve abscess.Established deformity evaluation requires testing of tendons for claw hand correction and deciding the type of operation. Although authors technique of carrying out 'lasso' has been widely accepted there is also the role of Brand's ECRL transfer in some situations and other techniques. While in the Camp Approach there is little choice of preoperative physiotherapy and mobile hands and feet are operated, the post-operative care is undertaken by staff of the College of Physiotherapy in the integrate setup after training. Splints are given at first follow up. Author has devised splints and described its role since his award-winning oration in 1991.

For the feet besides tendon transfer for foot drop and claw toes, major deformity is plantar ulcer. Author is credited with devising the "Self-care Kit" and empowerment of patient. Given free of cost mostly through health care workers monthly in their follow up has given excellent result. Government of India has included "Self-care Kit" in NLEP and nearly 88000 patients have benefited from this modality leaving only few in need of reconstructive surgery. Graft on arrival at PHC /CHC is a simple procedure, which helps in small wounds as OPD basis. Other procedures include flap cover by specialist plastic surgeons.

Facial deformities need correction of nose with nasolabial flaps, crescent excision for sagging skin or even classic plastic surgery face lift. Lagophthalmos need early attention to prevent blindness. Occasionally, muscle transfer and nerve transfer also may be required.

Nothing will be achieved by reconstructive surgery if patient is not economically rehabilitated with equipment's of increased income generation. Finally, Neela Shah's simple Grip-Aid Kit is a solution for advanced deformities seen in leprosy colonies for daily activitiesof living as rehabilitation in personal health and hygiene.

SUNDAY 18th APRIL 2021

Hall A - 9.30 – 10.30

FOCUS SESSION ON ISSUES IN LEPROSY

Chairpersons: Dr. Sendhil Kumaran & Dr. Narasimha Rao Netha

09.30-09.45 am

SURGICAL PROCEDURES IN THE EYE IN LEPROSY

Dr. Swapan Samantha

Proper MDT at the early hour of detection of Leprosy and Anti reaction measures with steroids , regular supervision and monitoring of the " RFT" population reduces the the incidents of Ocular Leprosy to a

remarkable extent. Today most of the Ocular complications in Leprosy are due to the normal aging process or from other phenomenon like the normal healthy population .

Cataract and Lagophthalmos with its sequaele are the main causes of blindness in Leprosy. However in indian Subcontinent though the Cataract Surgical Coverage is more than 70% but the same in case of Lagophthalmos is only within 30 percent and is lagging behind the necessity .

Integration of management of Ocular Leprosy with Community Eye Health Care Services is the talk of the day along with other Health Care facilities delivered to the People Affected with Leprosy (PAL).

Routine eye examinations are necessary for all PB and MB patients as well as for the " RFT" population to detect and treat High Risk Eyes with " PST Lesions" (Potentially Sight Threatening Lesions) as a pre operative measure.

All Eye Surgeries can be performed when needed, irrespective of deformities and bacteriological status, by latest micro surgical techniques with good visual outcome as well as better Rehabilitation Measures.

Repeated orientation training as well as Screening camps to identify and mobilize the PAL with avoidable blindness to the Secondary and Tertiary Eye Care Centre is the immediate special need for Ophthalmologists, Leprologists , Paramedical ophthalmic assistant , Paramedical workers for Leprosy and Eye Health Managers working under National Programme for Control of Blindness and Visual Impairment' as well as National Leprosy Eradication Programme serving at General hospitals specially in those areas which once upon a time were Leprosy endemic as well as those areas where prevalence of Leprosy is still a Public Health Problem.

The following six ocular conditions require surgical intervention .

1 . **Cataract** : Cataract operation with Intra Ocular Lens implantation in various ways (by _Small Incision Cataract Surgery or Phacoemulsification_) . It has given a great relief to the PAL to avoid the heavy Aphakic glasses with deformed nose . Small pupil with Posterior Synaechia with Cold Uveitis is the common intraoperative problem in PAL with Complicated Cataract or with history of ENL Reactions. In post operative days regular instillation of local Steroid Eye drop as well as Mydriatic and NSAID drops for six to eight weeks is the usual procedure. Some patients call for oral clofazimine and steroid to reduce post operative iridocyclitis . The surgical outcome are uneventful except Posterior Capsular Ipacification (20 to 30% after 5 to 10 years after surgery) which necessitates Yag Laser Capsulotomy.

2. **Lagophthalmos**: _Temporalis Muscle Transfer (TMT)_ is the common procedure adopted for the management of lagophthalmos even at district hospital level. The postoperative health education to the Patient " Think and Blink " is the best possible way to enjoy good vision. even Apart from Ophthalmologists, the Reconstructive Surgeons are performing this type of cases.

Tarsorraphy in advance cases or neglected cases of Lagophthalmos with Exposure Keratitis is the immediate surgery of choice so as to protect the cornea from further deterioration.

3. **Entropion and Entropion**: Because of the loss of fibres of Orbicularis Oculi as well as the Tarsal Plate from Lepromatous process the surgical outcome of Entropion or Ectropion by _Tarsal Rotation or Wheelers operation_ is not fruitful in most of the cases

4. **Chronic Dacryocystitis** : _Dacryocystectomy_ is the treatment of choice for Chronic Dacryocystitis with deformed nose.

5. Secondary Glaucoma following Chronic Uveitis : When medical treatment with local Anti Glaucoma Agents fails then surgical intervention is done. _Trabeculectomy_ is the Operation of Choice and _Drainage Surgery with GlaucomaValve_ is a postulation.

6. **Keratoplasty** : _Keratoplasty_ was tried In some cases where the corneal opacity following exposure keratitis is there. But the Graft is found to be rejected due to improper Corneal sensation .

Whatever best surgical procedure is adopted for PAL , the maintenance of good visual outcome are totally dependent on the personal hygiene following surgery which should be strictly followed by this group of population

9.45.00 – 10.00 am

ADVANCES IN THE SEROLOGICAL & MOLECULAR DIAGNOSIS OF LEPROSY

Dr. Kiran Katoch Former Director, NJIL & OMD (ICMR) Agra,
Presently, Dr AS Paintal Distinguished Scientist Chair of ICMR at IIHMR University, Jaipur.

M leprae is the causative organism of leprosy. Although, it was one of the first organism to be identified and be associated with the causative organism for leprosy disease, it till date cannot be cultured in any artificial medium. making the definitive diagnosis difficult. At present, the diagnosis of leprosy is largely based on the presence of the clinical signs of leprosy. Confirmation of leprosy is based on the presence of AFB in the skin smear and /or histologicial diagnosis in the biopsy specimen if available.

Several *M leprae* specific antigens have been identified in leprosy specially after the genome sequencing of *M leprae*. Testing for the both IgG and IgM antibodies against these antigens have been developed and also tested. Prominent among this is PGL 1 antibody test detection. However, it has been observed to also cross react with other mycobacteria like *M paratuberculosis* and*M avium* Secondly, although it is positive in MB cases its positivity in PB cases is about 40 to 60%. Moreover, it can also be detected in contacts of leprosy patients who have not manifested the disease, and therefore does not correlate with active leprosy disease. As the titres of this antibodies decreases with subsidence/treatment it may be used for monitoring response to treatment if measured initially at the time of initiating treatment as well as later as a test to study the response to therapy. Other antigen/antibodies widely tested in different regions include NDO-HSA,(a conjugate formed by natural octyl disaccharide bound to human serum albumin; LID-1, the fusion protein product of the ml0405 and ml2331 gene of *M leprae*and have been named as LID 1 (Leprosy Infectious Disease Research Institute Diagnostic 1); NDO-LID, a combination of LID-1 and NDO; NDO-BSA (the mimetic of *M. leprae*–specific PGL-I) and their conjugate, NDO-LID, to assess their ability to support the clinical diagnosis of leprosy. However, the sensitivity is less in PB type of leprosy. It has also been observed that LID-1 and NDO-BSA antigens could complement each other to yield greater sensitivities, but is still not optimum.

With the complete sequencing of the *M leprae* genome, the molecular structure of the *M leprae* (DNA and RNA) has been identified and by use of PCR technology (Polymerase chain reaction) amplified several times which allows the bacillus to be identified even when present in very small quantities. This molecular technique is now used for leprosy diagnosis, monitoring treatment, identifying different strains of the bacillus and also investigating the transmission dynamics of the disease. The real time PCR has further improved the sensitivity of the test and among the different fragments used to establish the leprosy diagnosis RLEP (specific repetitive element) is considered the most specific and sensitive. The RLEP

fragments can be identified in slit skin smears (SSS), in tissue sections, body fluids, environment etc, and found to be more sensitive than the serological assays. Identification of RNA fragment is used as a laboratory tool for identifying the presence of live organism. Immuno-histochemisry can also be undertaken, using RLEP sequence and *in situ* PCR for establishing the diagnosis in histological specimens.

More recently, a genosensor for *M. leprae* has been constructed using the immobilization of the bacillus single stranded DNA (ssDNA) on functionalized graphite electrodes. The interaction between the immobilized sequence and double stranded DNA (dsDNA) of *M. leprae* is measured electrochemically by reductions in the peak oxidation current and using ferrocene-carboxyaldehyde as the hybridization indicator. The result was very promising, showing efficient detection in only 3 minutes, The studies are ongoing in Brazil.

10.00 – 10.15 am

OVERCOMING THE CHALLENGE OF DRUG RESISTANCE IN LEPROSY

Dr. Vanaja P Shetty, Consultant Sr. Scientist FMR Mumbai

Various studies have shown that around 2-5% of leprosy cases may have secondary resistance (in replace case) and 1-2% may have primary resistance (in new case) to either Rifampicin or DDS or both. There are three main challenges in addressing the issue of drug resistance in a clinical setup.

1) How to suspect- The main factors that contribute to drug resistance are use of monotherapy and irregular treatment, To identify a high risk patient a good history taking, though time consuming is an invaluable tool.

2) How to confirm – Clinical presentation alone is not helpful in determining drug resistance. A slit skin smear is a doable simple test, help a great deal in answering some of the questions. Mouse foot pad test is the gold standard for the drug sensitivity testing but it is not a practical test as it takes more than 6 months to yield the results. Molecular probes are available for determination of resistance to DDS & Rif. The challenge is to make the test simple and affordable. One need to look out for new mutations and new drug targets.

3) How to treat and manage cases of drug resistance in leprosy – Second line drugs are available. Clinicians who are the forefront of suspecting, confirming & treating patients have to be well informed and updated on the second line drugs. They can also be the key players in minimising development of drug resistance.

To overcome the challenges, labs and clinicians need to work in close collaboration.

AWARD PAPERS

AWARD PAPERS

AP 1. GENOMIC PROFILING OF DRUG RESISTANCE GENES IN *M.LEPRAE.*

M. Ahuja[1,2], M. Lavania[1,3*], I. Singh[1], V.K. Pathak[1], V. Singh[1,]
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Introduction: Although MDT promises a decrease in prevalence of this disease, still according to literature; India stands on second number for relapsed cases after Brazil. If these relapse resistant cases remain undiagnosed then they might contribute to continuing disease transmission and will help in emergence of primary drug resistance in future.

Aims and Objective: In order to monitor the transmission dynamics of drug resistant leprosy, genome wide sequencing and comparison of *M.leprae* strains carried out by whole genome sequencing (WGS) of strains derived from drug resistant leprosy patients. This will reveal specific polymorphism associated with resistance to anti leprosy drugs.

Materials and Methods: The subjects were selected from the hospitals of The Leprosy Mission Trust India (TLMTI). A total of 417 biopsies (of 5x5 mm) were collected from hospitals of TLMTI. DNA concentration with 50ng or more were subjected to WGS.A total of fifteen relapsed leprosy patients from hospitals of TLMTI and one reference control strain (Br4923) from BEI Resources, USA, were subjected to whole genome sequencing.

Results: Whole Genome Sequencing of Relapse cases with Dapsone resistance, rifampicin and Ofloxacin showed the presence of compensatory mutations in *rpoC*, *mmpL7* (resistance nodulation and cell division (RND) superfamily)*,ML0192* (Conserved membrane protein), *priA* (Involves in replication),*ribG* (Involves in translation), *rrl* (Involves in transcription), *rrc* (Involves in transcription), *embC* (Involved in biosynthesis of the mycobacterial cell wall), *ctpC* (Integral membrane protein) genes, along with *rpoB*, that may be additionally responsible for conferring resistance in those strains.

Discussion and Conclusion: Results from this study support the role for compensatory mutation(s) resulting in drug resistance in relapsed leprosy patients. The genes *helY* (DNA Helicase Activity*)*, *guaA* (Involved in GMP biosynthesis), *rrs* (16S ribosomal gene)*,rrl* (23S ribosomal gene) and *ftsZ* (Essential for cell division) had shown the mutation in Rifampicin, Dapsone and Ofloxacin resistant patients and can be consider as new target for drug resistance.

AP 2 - *MYCOBACTERIUM LEPRAE* AND NON-TUBERCULOUS MYCOBACTERIAL ASSOCIATION IN THE ENVIRONMENT OF LEPROSY ENDEMIC REGIONS IN INDIA

V. Singh[1. 2],R.P. Turankar[1], I. Singh[1], N. Razdan[1], V. K. Pathak[1], M. Ahuja[1], R, Sharma[1], J. Darlong[2], A. Goel[3] and U. Sengupta[1].

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2. TLM Purulia Leprosy Home & Hospital, Purulia, West Bengal, India
3. GLA University, Mathura, Uttar Pradesh, India

Introduction: Several scientific reports show that viable *M. leprae* found in the environment but what are the NTM species present in environmental of leprosy inhabitant areas has not been explored.

Aims & Objectives: The aim of present study to find out the different NTM species associated with viable *M. leprae* in soil samples.

Materials & Methods: Total 359 soil samples were collected from different areas such as bathing, washing, sitting and entrance of the house from leprosy patients. The environmental samples were processed and culture on the Lowenstein Jensen media. NTM were confirmed by PCR sequencing method. Real time PCR was used detection of viable *M. leprae* from environmental samples.

Results & Discussion: Ninety-seven NTM isolates were recovered from 359 soil samples and presence of viable *M. leprae* could be detected in 12% of these samples. First time new NTM species such as *M. timomense*, *M. holsaticum, M. yongonense, M. szulgai, M. europaeum, M. simiae and M. chimaera* were isolated from Indian soil environment. Highest recoveryof NTM (35%) and presence of viable *M. leprae* (19%) were observed in bathing area soil samples, followed by washing area soil samples which showed 30% NTM isolates recovery and 15% of viable *M. leprae*in soil samples. Sitting area and entrance area had comparable number of NTM isolates (19% and 20% respectively) and viable *M. leprae* (5%) in environmental samples. Phylogenetic tree was showing a close association between these NTMs and M. leprae in these samples.

Conclusion: Several NTM species of pathogenic and non-pathogenic in nature along with M. leprae were isolated from soil samples and these might be playing a role in helping *M. leprae* in survival in environment and causing disease and maintaining leprosy endemicity in India.

AP 3 - A RAPID LOOP-MEDIATED ISOTHERMAL AMPLIFICATION ASSAY BASED APPROACH FOR EARLY DETECTION OF *MYCOBACTERIUM LEPRAE*

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Introduction: Early and accurate diagnosis of leprosy is important but still remains a significant challenge. Loop-mediated isothermal amplification (LAMP) is an isothermal process for amplification of nucleic acids at constant temperature, used to develop tests for many diseases

Aims & Objectives: In the present study, we have described the development of LAMP assay using six primers targeting the repetitive (RLEP) sequence which is uniquely present in *Mycobacterium leprae*.

Materials & Methods: Skin Biopsy samples (n = 62) positive for *M. leprae* DNA by conventional PCR targeting RLEP were tested using were analysed using loop-mediated isothermal amplification assay at ICMR-NIRTH, Jabalpur. The six primers; outer primers (F3 and B3), inner primers (FIP and BIP) and loop primers (LF and LB) were designed using Optigene LAMP designer tool. Loop-mediated isothermal amplification reaction was performed in 25¼L reaction mixture containing 2X LAMP Master mix, 2uM each of F3 and B3, 8uM each of FIP and BIP, and 4uM each of the LF and LB, respectively and incubated at 66°C for 45 minutes. We also included negative controls (genomic DNA from human and bovine sources).

Results & Discussion: Positive results showed the colour change from pink to yellow after amplification in n=57 out of 62 skin biopsy samples whereas negative control samples produced no change in colour and yielded no amplification when checked by electrophoresis. Loop-mediated isothermal amplification

assay specifically amplified RLEP of *M. leprae* genomic DNA and provided more rapid and accurate results. It was proved to be simpler and faster than PCR assay.

Conclusion: This LAMP assay has greater potential for developing quick, accessible field-friendly method for detecting *M. leprae*. This will allow early diagnosis and treatment in endemic areas which can help in reducing the transmission.

AP 4 - EFFECTIVENESS OF A SHORT COMPREHENSIVE MULTIMODAL BEHAVIOURAL INTERVENTION MODEL FOR LEPROSY EDUCATION IN TRIBAL AREAS OF KERALA

Nisha Kurian, Saritha Susan Varghese, Elsheba Mathew

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Introduction: National Leprosy Elimination Program aims at reducing prevalence of leprosy to less than 1/10,000population. Raising awareness and health seeking behaviour in remote tribal areas is a challenge for a successful program.

Aims & Objectives: To assess the effectiveness of a short comprehensive multimodal behavioural intervention model on leprosy related knowledge among residents of tribal areas

Materials and Method: A house-to-house awareness survey was conducted among 104 adult residents from tribal areas in two districts of Kerala using a questionnaire prepared in vernacular language, content validated and pilot-tested, covering aetiology, symptoms, transmission, and treatment in leprosy. Immediately after,a package of culturally adapted leprosy-related education was provided through print, individual and group education using trained community volunteers as well, and a street play. Assessment was repeated one-month post-intervention, followed by a detection camp. The effect of education was analysed using Chi-square and Mc Nemar Chi-square tests.

Results: The age of the participants ranged from 20 to 75 years, with a mean (SD) as 42.6 (15.3) years, and 58.7% were females. The median knowledge score regarding leprosy improved from 1.0 before to 5.5 after the intervention, the difference being statistically significant ($p<0.001$). The improvement was associated with age and it was significantly more remarkable in Idukki where the baseline median knowledge was zero. Sex, education and occupation did not seem to influence effect of education.

Discussion: Kolay (2016) as well as Mutatkar (2003) reported similar improvement in knowledge among tribal populations in India as a result of health education interventions.

Conclusion: The short intervention program effective in achieving significant improvement in knowledge in the study group, may easily be incorporated into any existing program. As for the health seeking behavior for leprosy, the participants have understood the availability of treatment free of cost provided by the government system. In both places we did not find any leprosy suspects.

Funding: ICMR

AP 5 - PREVALENCE OF LEPROSY RELATED DISABILITIES POST-LEPROSY TREATMENT- A VERTICAL STUDY

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Affiliations: LEPRA Society, Blue Peter Public Health and Research Centre, Hyderabad, India- 501301.

Introduction: Leprosy patients even after completion of the multidrug (MDT) treatment, are prone fordevelopment of new disabilities or worsening of the existing disabilities.In one of our earlier studies,

it was found that 16.6% of patients had developed disability 5 years after the RFT. Current study has been undertaken to examine if there is any improvement or worsening of disabilities among the same cohort of patients.

Aims & Objectives: To assess the risks of developing new or worsening leprosy-related disability among persons who have completed leprosy MDT at two different follow-up periods.

Materials and Methods: A non-randomised sample from a cohort of patients registered with Lepra Referral Centres in Odisha and Telangana States between April 2005 and March 2010 were followed up during the years 2013 and 2021. Patients were assessed using a structured questionnaire capturing the risk factors for leprosy-related complications known to significantly increase risk to development or progression of disability.

Results & Discussion: 631 subjects who were released from treatment (RFT) during 2005-2010, were followed-up in the year 2013. Out of the 631 subjects followed up in of 2013, 326 (51.6%) were re-examined in 2021. (12 (1.9%) did not consent and161 (25.5%) were not available for examination.)The average age of the participants was 46.7±14.4 years.268 participants who had no disability during 2013 follow-up, 13 (4.9%) developed grade-I and 12 (4.5%) grade-II. Of the 25 participants who were grade-I in 2013, 9 (36%) developed grade-II during the 2021 follow-up.

Conclusion: The study observations indicate that there are risks of worsening of disability status among the leprosy patients even after 10years of post-MDT treatment.Therefore,monitoringshould be done more regularly and for longer than the recommended follow-up period of three years for PB cases and five years for MB cases.

AP 6 - CHANGE IN SALSA SCORE AFTER RECONSTRUCTIVE SURGERY RETROSPECTIVE FOLLOW UP STUDY

Geeta Bharti (Occupational Therapist TLM community Hospital Delhi-93)
Dr. Rajeev Joy Nathan (Medical superintendent, TLM Community Hospital Nandnagri Delhi-93)
Pankaj Gupta (Physiotherapist TLM community Hospital, Delhi-93)
Dr. M.S.Raju (Social Scientist, The Leprosy Mission Trust India)

Background: Impairment of Autonomic, sensory and motor nerve function is a common complication of leprosy. It often leads to secondary impairments or deformities of eye, face hand and feet. Deformity due to leprosy can affect daily activities. Screening of Activity Limitation And Safety Awareness (SALSA) is a questionnaire that measures activity limitation in peripheral neuropathy (Leprosy and Diabetes) It is a cross-cultural tool, comprising 20 items of daily activities. It is applicable World-Wide.

Research question: Does tendon transfer surgery for correction of deformities in eyes, hands and feet improve activity level?

Objective: To compare the change in SALSA score before and after Reconstructive surgery (RCS) and the variation with types of deformity and gender.

Methodology: Data was collected retrospectively from the hospital record of all the patient who underwent surgery from Jan 2017 to Dec 2019 were included in the study.

SALSA questionnaire was administered before and after RCS and the scores were categorized into 5 categories as prescribed in the scale and analyzed using cross tables and also on the basis of average differential score. A total no of 50 cases who have undergone RCS in TLM Shahadara hospital were studied.

Result: The results show that as per pre RCS scores proportion cases in Extreme limitations (26%), severe limitations (16%), moderate limitations(18%), mild limitations(36%) and No significant limitations (4%), which changed after RCS to 0%, 12%, 8%, 40% and 40% respectively.

The overall impact shows maximum no of those undergone RCS is facing mild limitations or no significant limitations.

Conclusion: The study clearly demonstrates improvement in the activity levels of the patients undergoing re constructive surgery for the correction of the deformities in leprosy. Further as the activity level of the patients increases it in turn improves social participation. As the activity level improves with the correction of deformities it leads to better livelihoods prospects for the patient and family**.**

AP 7 - IL-6 AND ITS RECEPTOR IL-6R PROMOTES CD4+IL-17A+ CELLS IN T1R LEPROSY REACTIONS

Chaman Saini[1,2], Rupesh K. Srivastava[1], Neena Khanna[3], V. Ramesh[4] and Alpana Sharma[2]

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Background: Leprosy is an infectious disease caused by *Mycobacterium Leprae.Reversal reactions (RR)* an inflammatory condition present as inflammation of local skin patches. Approximately, 30-40% leprosy patients have undergone *RR* during the course of MDT. Previously, we have reported that IL-23 is involved in Th17 cells differentiation and not IL-6 in non-reactions leprosy patients. Subsequently recent finding by our group on immunopathology of leprosy reactions showed that IL-6 induces Th17 differentiation together with TGF-^{2} in leprosy reactions. As, we asked the question that whether IL-6 or IL-23 induced Th17 cells are different in nature?

Methods & Materials: A total of 20 newly diagnosed and untreated stable leprosy and reactions patients were recruited. 48 hours PBMCs cultures were established with different combination of recombinants IL-6, IL-23 and TGF-^{2} with or without *Mycobacterium Leprae Sonicated Antigen*. Subsequently PBMCs cultures were blocked with either antagonized IL6R or IL23R antibodies. Real Time PCR was used for gene expression analysis of IL-17A, IL17F, IL6R and IL23R. Different phenotypes of Th17 cells were studied by Flow cytometry and culture supernatant was estimated for cytokine ELISA.

Results: In this study, leprosy reactions showed high percentage of IL17A and IL17F producing $CD4^{+}$ IL6R+ T cells as compared to stable leprosy patients($p<0.001$). On the other hand, leprosy reactions showed significant low ($p<0.001$) IL-17A and F producing $CD4^{+}$ IL23R+ Th17 cells as compared to stable leprosy patients in 48 hours *MLSA* stimulated cultures. Furthermore, recombinant IL-6, IL23 and TGF-^{2} significantly ($p<0.001$) promotes IL17A and IL17F in CD4+IL6+ T cells. Subsequently, IL6R and IL23R blocking experiments showed significantly ($p<0.01$) down regulated IL-17A and IL17F in T1R reaction as compared to stable leprosy patients.

Conclusion: This study for the first time establishes that pathogenic Th17 cells IL-17 produce via IL-6R pathway in leprosy T1R reactions. Thus, present approaches that specifically target Th17 cells and/or the cytokines that promote their development, such as IL-6, TGF-^{2} and IL-23A may provide more focused treatment strategies for the management of *M. Leprae* and its reaction. Hence, therapeutic approaches that aim to re-establish homeostasis by decreasing the production of IL-17 by Th17 may prove effective in the control of leprosy reaction and its emergency.

AP 8 - MOLECULAR SCREENING OF NEWLY DIAGNOSED LEPROSY CASES FOR DRUG RESISTANCE IN *M.LEPRAE*.

M. Ahuja[1,2], M. Lavania[1], **Rahul Sharma**[1,2], I. Singh[1], V.K. Pathak[1], V. Singh[1], R.P Turankar[1], J. Darlong[3], A. Reddy[3], J.Rahmi[3], U. Sengupta[1] and S.V Singh[2]

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Introduction: Purulia is one of the endemic districts in West Bengal with ANCDR of 3.0/100000. It has been noted from earlier experience that any therapeutic control measure for prevention of disease with antibiotics ultimately leads to emergence of drug resistance. Therefore, a surveillance mechanism should function as a 'watch dog' for identification of drug resistance.

Aims and Objective: This study was undertaken to screen for *M. leprae* primary drug resistance to Dapsone, rifampicin and Ofloxacin by PCR sequencing of *folP1, rpoB* and *gyrA* genes respectively in new patients of leprosy from Purulia.

Materials and Methods: In the present study, slit- skin smears samples were collected from 161 newly diagnosed leprosy cases from TLM Purulia hospital in the duration of 2017-18 and from RML hospital in the duration of 2020-21. DNA was extracted from these samples and were analyzed for the genes associated with drug resistance in *M. leprae* genome. Wild-type strain (Thai-53) and mouse footpad-derived drug-resistant (Z-4) strain was tested as reference strains.

Results: Out of these 161 cases 5% were found to be associated with Rifampicin resistance as revealed by mutations in *rpoB* region. We also observed 3.1% and 13% of the *M. leprae* DNA samples showing mutations that was associated with resistance to Dapsone and Ofloxacin, respectively. One patient each was resistant to Rifampicin and Dapsone and Rifampicin and Ofloxacin, respectively.

Discussion and Conclusion: Results from this study revealed the presence of resistance to anti-leprosy drugs in new cases of leprosy. The findings of this study show the emergence of primary resistance to rifampicin in new cases of leprosy. The emergence of new cases with resistance to ofloxacin indicates that resistant strains are actively circulating in endemic regions of India from secondary resistance cases and infecting the naive population at risk.

AP 9 - PROSPECTIVE STUDY OF NERVE CONDUCTION CHANGES IN LEPROSY PATIENTS BEFORE AND AFTER MDT

Dr. Manjunath.S.K(2nd yr PG), Dr. Karthik, Dr.Kiran Kumar(Asst.Prof), Dr.Mohanlal.B(Assoc.Prof), Dr.Padmaja.P(Prof), Dr.A.Venkatakrishna(Prof.&HOD), Osmania Medical college, Hyderabad

Introduction: Leprosy is a chronic granulomatous disease which is principal cause of non-traumatic neuropathy. Functional derangement of nerves can be shown by nerve conduction studies before appearance of clinical signs and symptoms of the disease. This study was done to evaluate the role of electrophysiological evaluation of nerve function in assessment of neurological changes before and after MB MDT.

Aims and objectives: To compare the changes in NCS in leprosy patients before and after treatment. To determine the response of NFI to treatment with MDT, whether improving, deteriorating or remaining the same after completion of MDT.

Materials and methods: 50 newly diagnosed cases with proven leprosy belonging to all age group between 12-60yrs were included in the study after taking their consent. In each case detailed history, general physical, local and systemic examination done with necessary investigations and biopsy. The electrophysiological nerve conduction assessment was done for all the patients. The parameters studied were distal motor latency, compound muscle action potential, sensory nerve action potential(SNAP), onset latency, and conduction velocity.

Results & discussion: Most cases were found to be in lepromatous spectrum 21(46.4%) cases, followed by tuberculoid, indeterminate and pure neuritic cases. Peak incidence was seen in 21- 30years (46.6%). Only 7(17.7%) cases had totally normal NCS and rest 38(82.2%) cases had abnormal NCS. Most common pattern observed was sensory motor axonal neuropathy. Most commonly involved nerve was sural nerve which was affected in 39.5% cases. A total of 187(41.5%) nerves had abnormal NCS before starting MDT and 142(31.5%) nerves had abnormal NCS in post-MDT.

Conclusion: Electrophysiological studies help in detecting the integrity of nerve function in leprosy. They also help in early detection of NFI and provide a baseline and objective measure for gauging the response to therapy and follow up. It also infers that chemotherapy does not reduce nerve damage once it is present, although early treatment reduces potential risk for future nerve damage.

AP 10 - MULTIPLEX PCR BASED M. LEPRAE DETECTION ASSAY FOR EARLY LEPROSY AND HOUSEHOLD CONTACTS SURVEILLANCE

V.K. Pathak[1] , I. Singh[1] , R.P. Turankar[1] , M. Lavania[1] , M. Ahuja[1],
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The Leprosy Mission Hospital, Muzzafarpur, Bihar, India.

Introduction: Early diagnosis of leprosy is important for limiting the severity of disease, which may lead to disabilities and deformities if not cured timely.

Aim & Objectives: Present study was aimed to develop a multiplex PCR (MPCR) based M. leprae detection assay from skin smears, nasal swabs, saliva and blood of leprosy patients and their household contacts (HHCs).

Material and Methods: Total of 100 clinically confirmed PB (Paucibacillary) cases of leprosy patients and their 80 HHCs were recruited. Slit skin scrapings (SSS), blood, nasal swabs (NS) and saliva from PB cases and their HHCs were tested by multiplex PCR using three different targets namely RLEP, 16SrRNA and sodA.

Results: Results showed that by using individual gene PCR, target RLEP is the most suitable target in all kind of samples followed by 16Sr RNA and sodA genes. In PB cases, sensitivity and specificity for slit skin smear (SSS) were found 0.86 and 1 respectively [positive predictive value (PPV) 1; negative predictive value (NPV) 0.78] using MPCR whereas using individual PCR values were 0.62 and 1 (PPV 1; NPV 0.56) for maximum detection by targeting RLEP. Similar patterns were found in blood samples. In case of nasal swabs using MPCR the sensitivity and specificity were 0.8, 0.6 (PPV 0.56; NPV 0.83), respectively.

Discussion: M-PCR can be a better choice of molecular tool for detection of leprosy in clinical samples with higher accuracy than the conventional single gene PCR. Our results showed that in PB cases, M-PCR with SSS is most sensitive (0.86) and specific (1) test for diagnosing subclinical infection of leprosy followed

by blood (sensitivity 0.72; specificity 1), nasal swab (sensitivity 0.8; specificity 0.6) and saliva (sensitivity 0.5483; specificity 1).

Conclusion: Our findings suggest utility of M-PCR using RLEP, sodA and 16SrRNA genes for early diagnosis and household contact surveillance for leprosy.

AP 11 - EPIDEMIOLOGICAL SIGNIFICANCE OF HIGH PROPORTION OF MULTIBACILLARY LEPROSY IN CHILDREN IN POST ELIMINATION ERA

Authors: Dr. V Shambhavi Reddy, Dr. C Sudharani (Professor),
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Introduction: Leprosy, a chronic granulomatous infection, is still a major public health problem in some countries. Although leprosy affects all age groups, leprosy in children is of special importance as it is an indicator of active horizontal transmission in the community. Children present with paucibacillary type most commonly, but multibacillary cases are on rise significantly increasing the burden. Source of infection in children could be familial or non familial. Household contact increases the risk by 9 fold.

Aim: To study the clinical pattern of Hansen's disease in children under 16 years of age attending tertiary care center

Materials and methods: A retrospective cross sectional study of all the registered and treated leprosy cases among children under 16 years of age in Gandhi Hospital and Nizamabad government hospital during 2016-2020. Clinical examination, SSS, skin biopsy were done to diagnose a case of leprosy. A sample of 69 childhood cases were studied.

Results and discussion: Among a total of 619 cases, 69(12%) were children.The majority (59.4%) are among 10-14 years of age. There was a slight male (53.6%) preponderance. The mean duration of disease before diagnosis was 3-6 months. History of contact was present in 17 cases (24.6%). Borderline tuberculoid (BT) was the commonest clinical type in 36(52.2%) cases. There were 33(47.8%) multibacillary cases, where LL was the commonest in 17 cases (24.6%), followed by BL in 12 cases (17.4%). Reactions were observed in 19 patients (27.5%), where ENL was the commonest in 16 cases (23.2%) and type 1 in 3 patients (4.35%). Majority of lepromatous patients presented with a history of epistaxis, pedal edema, ear lobule infiltration, and papulonodular lesions. There was no significant peripheral nerve involvement. SSS was 3+ to 4+ in most of them, skin biopsy confirmed the disease.

Conclusion: Our study confirmed that childhood multibacillary leprosy cases are on rise in spite of statistical elimination. This shows active transmission of bacillus, lack of disease control by health care system, and inadequate monitoring of endemic. Early detection, treatment, contact tracing and continuation of leprosy control activities helps in reducing leprosy burden in the community.

AP 12 - ASSOCIATION OF MORPHOLOGICAL PATTERNS OF ERYTHEMA NODOSUM LEPROSUM AND EXTRACUTANEOUS MANIFESTATIONS IN TYPE 2 REACTION IN LEPROSY: A CROSS-SECTIONAL STUDY FROM EASTERN INDIA.

Dr. Namrata Sarkar, Dr. Biswanath Behera, Dr. Siddhartha Dash
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Introduction: Type 2 reaction is a reactional state in lepromatous and borderline lepromatous leprosy, characterized by sudden appearance of crops of erythematous, evanescent, tender nodules and plaques along with inflammation of nerves, other organs and constitutional symptoms.

Aims and Objectives: 1. To determine the spectrum of morphological patterns in erythema nodosum leprosum (ENL).

2. To find association between the morphological pattern and the extracutaneous manifestations in ENL.

Material and Methods: A retrospective descriptive analysis of the morphological patterns of ENL and the extracutaneous features of 24 consecutive ENL patients admitted in the Dermatology department of a tertiary care institute from January 2019 to March 2021 was done. Association between the morphological pattern and the extracutaneous manifestation was found using Chi-Square test.

Results: The different cutaneous morphology in the 24 patients with ENL (median age: 38) were nodules (n=20, 46.5%), plaques (n=8, 18.6%), ulceration (n=5, 11.6%), bullae (n=2, 4.7%), urticated papules (n=2, 4.7%), pustules (n=3, 7%), and 3 (7%) had necrotic lesion, haemorrhagic crust or reticulate erosions. Neuritis was seen in 14, orchitis in 7, periosteitis in 5 (out of 24) patients. Other features were dactylitis, ocular inflammation and arthritis, lymphadenopathy (3) and peripheral edema (9). A positive and strong association was found between arthritis and urticated papule (p=0.001), between ocular inflammation and ulceration (p=0.046) and pustular ENL (p=0.007), and between periosteitis and ulceration (p=0.015), pustule (p=0.00) and hemorrhagic crust (p=0.046)

Discussion: Prompt identification, differentiating from Sweet syndrome, cutaneous vasculitis etc and treatment will help in averting deformity and mortality in ENL. Clinical profiling of ENL has been attempted by the ENLIST Group and Wankhede et al. Cutaneous morphology having significant positive association with the extracutaneous manifestations can be included in the ENL severity scales.

Limitation: Due to small sample size, the association found in our study could be by-chance

Conclusion: ENL has diverse manifestations and similar larger studies can identify newer morphological patterns and in confirming the association between the cutaneous morphology and the extracutaneous manifestations.

FREE PAPERS

FREE PAPERS

HALL A
TIME : 10-11AM

1. CHILDHOOD LEPROSY CASES WITH DISABILITY

Dr. Satyadarshi Patnaik, MKCG Medical College, Berhampur.

Background: A high proportion of leprosy in children among new cases reflects a high level of transmission of the disease in a given population. Deformities hinder social, academic and physical development of a child. Early diagnosis and treatment of childhood leprosy is necessary to prevent deformities and to reduce the psychosocial and economic burden of leprosy. Despite achievement of elimination status of leprosy in 2005, the reported prevalence and incidence of childhood leprosy cases with disability continue to be high.

Aim: To study clinical presentation and epidemiological aspects of childhood leprosy cases with disability.

Method: An observational cross-sectional study was done in a tertiary center in Odisha including all male and female cases with clinical symptoms and/or signs of childhood leprosy- anesthetic skin patch/ enlarged peripheral nerves with disability less than 14years of age from October 2018 to June 2020.

Result: A total of 56 cases of childhood leprosy reported.48(86%) children had no visible deformity or damage. 8(14%) children had impaired sensation of hands and feet. The most common disability observed was visible muscle wasting (26.7%) followed by impaired sensation of hands and feet (14.2%). Other changes observed were claw hand (3.5%), foot drop (1.78%), sausage shaped digits (1.78%), trophic ulcers (3.5%), difficulty of movement of joints (7.1%) and callosities/ fissuring (3.5%).

Conclusion: Disability is more than a mere physical dysfunction and includes activity limitations, stigma, discrimination, and social participation restrictions. Early case detection followed by full treatment is the most important step to prevent and or to minimize NFI and disability.

2. A SOCIO- CLINICAL PATTERNS OF LEPROSY IN A TERITARY CARE HOSPITAL

Dr. Dharpalli Swethanasree, 2nd Year PG, GEMS & Hospital

Introduction: Leprosy, achronic granulomatous disease manifests as patches, plaques, nodules and few uncommon presentations which result in delay of treatment and transmission, so early diagnosis and treatment is essential.

Objective: To evaluate social determinants and uncommon presentations of leprosy.

Methods: The patients attending DVL OPD in our hospital from May 2019 to April 2020 under suspicion of leprosy were included, thorough history, clinical examination, slit skin smear for AFB and biopsy were done.

Result: Of total 45cases, males-26(57%), females- 19(45%)). The majority were laborer's, with age group 25-50 years with incomplete elementary education and significant overcrowding was noticed. BCG scar was, noted in25(55%)patients.

Intrafamilial manifestation was noted in three families (7%).

We have noticed maximum of BT Hansen's disease followed by trophic ulcers and most common nerve involved was ulnar nerve. Uncommon and rare presentations similar to annular syphilide, granuloma annulare, noduloulcerative lesions in a sporotrichoid pattern, erythema multiforme, discoid lupus erythematosus, cutaneous vasculitis like, hypopigmented patch over the dorsum of finger withparanoychia, were noted.

Conclusion: The social determinants can contribute to eliminate and prevent transmission. Leprosy can be a great mimiker so high index of suspicion is necessary to diagnose and treat early to prevent morbidity.

3. FOCAL TRANSMISSION OF MYCOBACTERIUM LEPRAE INFECTION IN LEPROSY FAMILIES OF ENDEMIC REGION IN INDIA

R.P. Turankar[1], V. Singh[1], I. Singh[1], V. K. Pathak[1], M. Ahuja[1], M. Lavania[1], J. Darlong[2], S. Kumar[1] and U. Sengupta[1].

1 The Leprosy Mission Trust India, Stanley Browne Laboratory, TLM Community Hospital, NandNagri, Delhi, India.
2 The Leprosy Mission Home & Hospital, Purulia, West Bengal, India.
3 The Leprosy Mission Trust India, Champa, Chhattisgarh, India.

Introduction: Various mechanisms of transmission have been suggested for leprosy. The transmission of leprosy occurs by contact between leprosy cases and healthy persons especially in the household situations. Presence of M. leprae in nose indicating its nasal carriage and environmental sources have been proposed for disease transmission by several workers.

Aims & Objectives: The objective of the present study was to find out the focal transmission of viable M. leprae from clinical and environmental sources to healthy individuals in household environment.

Materials & Methods: Total100 leprosy patients and their 293 household contacts (HCs) were enrolled in this study. The clinical and environmental samples were collected from these subjects and their inhabitation areas of community. PGL-1 antibody levels in saliva from cases and HCs were determined by ND-O-HSA ELISA. PCR and Real time (RT) PCR were performed in SSSs, nasal swabs and environmental samples followed by genotyping of M. leprae to trace the transmission link in leprosy.

Results & Discussion: RTPCR positivity was noted in 74% SSSs of leprosy patients and 10% of HCs. It was further noted that RT-PCR positivity was 19% in soil as compared to 12% of water samples. Follow-up of the HCs in leprosy families in these endemic regions showed development of disease in HCs within a duration of 3 months to 5 years. Further, genotyping of M. leprae showed that SNP type 1 of M. leprae is circulating in the endemic region with majority being SNP subtype 1D. ELISA using antibody responses to ND-O-BSA showed high levels of antibody in cases, HCs and non-contacts of endemic region indicating that all subjects were exposed to M. leprae infection.

Conclusion: This strongly indicates that viable M. leprae from patients and environmental sources might be playing as a source of infection to HCs who were also positive for viable M. leprae in their nose.

4. ROLE OF HELMINTHIC PARASITE INFECTION IN THE DEVELOPMENT OF LEPROSY: A COHORT STUDY

V.Singh[1.2] , R.P. Turankar[1] , I. Singh1 , V. K. Pathak[1] , M. Ahuja[1] , R, Sharma[1] , J. Darlong[2] , A. Goel[3] and U. Sengupta[1]

1. Stanley Browne Laboratory, The Leprosy Mission Trust India, Delhi. 2.TLM Purulia Leprosy Home & Hospital, Purulia, West Bengal, India. 3.GLA University, Mathura, Uttar Pradesh, India

Introduction: India alone contributes nearly 25% to the total global helminthic parasitic infection cases. Studies have suggested that the helminth infection can regulate the immune response of the host and make susceptible towards chronic infection. The status of helminthic co-infection with leprosy disease has not been explored in vitro model.

Aims & Objectives: The aim of present study to find out the helminthic parasite infection in leprosy and their household contact in stool samples and immune status of host in development of leprosy.

Materials & Methods: A total of 369 stools samples were collected from 96 patients and 273 household contacts (HHC) from endemic villages of Purulia and Champa. The samples were screened for the presence of intestinal parasites using microscopic method. Further the cytokine profiling (TH1 and Th2) of helminth positive and negative leprosy patient study groups was carried out in vitro experiment.

Results & Discussion: Intestinal parasites were detected in 35 (37%) leprosy patients and 72 (26%) HHCs. The presence of intestinal helminth was more prevalent among leprosy patients, when compared to HHC. However, a two-tailed P value of 0.1276 was not found to be statistically significant. Further, HHC were followed up in 6 months' interval for the development of sign and symptoms of leprosy up to 4 years. It was noted that 30 contacts developed leprosy disease but out of these only three contacts had parasite infection earlier. Cytokine profiling results show that despite having a significant difference in IFN-^{3} levels helminth infection does not play any role in the development of leprosy. IL 12 and IL 10 cytokines were not found to be statistically significant between the helminth positive and helminth negative test groups.

Conclusion: Study indicates that intestinal parasite infection has no role to play for the development of leprosy.

5. EVALUATION OF CLINICAL SPECTRUM AND CORRELATION OF BACTERIOLOGICAL INDEX IN SLIT SKIN SMEAR AND HISTOPATHOLOGY AMONG NEWLY DETECTED HANSEN'S DISEASE PATIENTS

Dr. G Abirami, Dr. Arunkumar V, Dr. P Nirmaladevi, Dr. P Sivayadevi
Department of Dermatology, Venereology and Leprosy, Tirunelveli Medical college

Introduction: Leprosy is an infectious granulomatous disease caused by Mycobacterium leprae. It is a chronic, progressing and disabling disease predominantly affecting the skin and peripheral nerves.

Aims and objectives: To study the incidence of different subtypes of leprosy and to evaluate the correlation of clinical profile with slit skin smear and histopathological findings.

Materials and methods: This was a cross-sectional study of evaluation of clinical spectrum and correlation of bacteriological index in slit skin smear and histopathology in newly detected Hansen's disease done over a period of 1.5 years.

Results: A total of 26 newly diagnosed Hansen's disease patients were studied, between the age of 7-65 years. Male-to-female ratio was 1:1. Most common presenting feature was hypo pigmented patch seen in 10 (38.46%) patients followed by plaque in 9 (34.61%). Peripheral nerve involvement in the form of thickening was seen in 17 (65.4%) patients. Maximum of 15 (57.69%) patients were clinically diagnosed to have Borderline Tuberculoid spectrum followed by Tuberculoid in 3 (11.5%). Only 8 (30.76%) showed smear positivity. Borderline Tuberculoid was the most common histopathological diagnosis seen in 10

(38.5%) followed by Tuberculoid in 6 (23.1%). Clinical and histopathological concordance was seen in 73.07% of cases. Concordance was highest (100%) in Histoid and Lepromatous Leprosy.

Discussion: Many cases can be diagnosed clinically; especially Lepromatous pole of the disease. However, other types of Leprosy pose a significant problem in clinical diagnosis. Histopathological examination confirms the exact subtype of the disease and facilitate the institution of accurate mode of therapy. So, correlation of clinical and histopathological features along with bacteriological index is more useful for accurate typing of leprosy than considering single parameter alone.

Conclusion: Though there are many studies comparing clinical spectrum and histopathological correlation, there are only few studies comparing clinical spectrum, histopathology and bacteriological index in slit skin smear.

TIME: 11 am – 12 pm

1. CHILDHOOD LEPROSY: A PROSPECTIVE STUDY IN POST-ELIMINATION ERA

Dr. Varsha Babu Hunashikatti (2nd year PG); Dr. Nippa Devi. A. Patel (Assistant Professor)
Dr. K. Krishna Priya (Assistant Professor); Dr. D. Indira (Associate Professor);
Prof. Dr. Rajeev Singh, Dr. A Venkata Krishna (Professor and HOD),
Dept of DVL, Osmania Medical College

Introduction: Childhood leprosy is an indicator of ongoing transmission in the community. Despite its statistical elimination in 2005 the prevalence of childhood leprosy cases continues to be high.

Aims and objectives: To study the clinico-epidemiology of leprosy in children

Methods: A prospective study of leprosy patients below the age of 18 years attending a tertiary care centre between July 2019 to Dec 2020 was conducted.

Results: Out of 480 patients 13 patients (2.70%) were below 18yrs. M:F ratio was 1.2:1. Most of the patients were in the age group of 11-18yrs(76.9%). Borderline tuberculoid was the commonest type(61%) followed by TT(30%) and Lepromatous leprosy(7.6%). Most commonest presentation was a hypo-pigmented patch. Family history was present in 38.4%. Type 1 reaction was seen in 15% and type 2 reaction was seen in 7.6% cases. Clinico-histopathological correlation was found in 76.9% of patients and smear positivity in 38%. According to WHO classification, 76.9% of cases were paucibacillary and 23.1% were multi-bacillary.

Conclusions: Higher proportion of childhood leprosy cases indicate higher transmission. Clustering of multi-bacillary cases in the family suggests that family contact tracing is mandatory in all cases.As hypo-pigmented patches are a frequent occurrence in childrenand when present on face can be misdiagnosed these patches should be thoroughly evaluatedwith suspicion of Hansen's. Early suspicion and case detection are important to reduce the burden of leprosy in the community.

2. INOCULATION SITE (TATTOO) LEPROSY

Dr. Farheen Begum (PG), Dr. Chinmoy Raj (IMS and SUM Hospital)

The main route of transmission of Leprosy is the nasal mucosa. Less commonly, transmission can occur by skin erosions. Other transmission routes, such as blood, vertical transmission, breast milk, and insect bites, are also possible.

Tattooing involves inserting pigments into the skin. There are reports of tattoo site infections such as dermatophytosis,verruca, Pityriasis versicolor, Molluscum on tattoo site but there is scarcity of literature for a leprosy patch on a tattoo. We report an interesting case of a BT Hansen's patch on a tattoo.

3. UNUSUAL PRESENTATIONS OF LEPROSY:A CASE SERIES

Dr.Gumma Sai Snigdha Bhashitha, Dr.K.Siva BalaVaishnavi,
Dr.Sandeep Kodali, Dr.A.Geetakiran
Mallareddy Institute of Medical Sciences, Hyderabad

Introduction: - Accurate diagnosis in leprosy is of primary importance. Delay in the diagnosis of leprosy is not uncommon and occurs usually due to variable clinical presentations and long incubation period. We herewith present 4 unusual cases of leprosy with diagnostic and management ambiguity.

Case report: Case 1- A 20 yr old female presented with dull red discoloration of both upper and lower limbs associated with pain of 1month duration. There was history of occupational thermal exposure to heat 6hrs a day. Patient was treated for vasculitis by other doctors. On examination there was diffuse erythema, edema, induration and tenderness. There was no loss of sensation.SSS was negative. Considering a diagnosis of panniculitis, Skin biopsy was done which revealed BT Hansen's disease in type 1 reaction.

Case 2- A 50 yr. old female presented with asymptomatic curvilinear ulceration measuring about 25 x 3 sq.cm over left hand extending from hypothenar eminence up to olecranon process. On examination complete loss of sensation over medial side of left hand with atrophy of hypothenareminence, guttering of interossei muscles and partial clawing of left hand was seen. Left ulnar nerve was thickened. SSS was negative. Skin biopsy revealed BT Hansen's.

Case 3- A 55yr old man presented with relapsed solitary hypo pigmented anesthetic patch over frontal scalp with loss of hair over the patch of 1month duration.SSS was negative. History of usage of MB-MDT 10yrs back for anesthetic patches over lower limbs. Skin biopsy revealed TT Hansen's.

Case 4-A 45 yr. old woman, an old case of pure neuritic Hansen's disease presented with tingling numbness over both lower limbs and left hand since 2months. Patient was treated with MBMDT twice for 1year (primary disease-2008 and relapse -2012)12 yrs. back. SSS was negative. Skin biopsy done adjacent to common peroneal nerve is suggestive of indeterminate Hansen's disease.

Discussion and conclusion: As we still have endemic areas of leprosy a high index of suspicion should be present while examining the cases. We present these cases due to their peculiarity in presentation and ambiguity in managing the recurrence /relapse cases.

4. LEPROSY MASQUERADING AS DEEP FUNGAL INFECTIONS

Dr. Harithasree L (PG Resident), Dr K Penchalaiah, (HoD Dept of DVL)

Introduction: *Leprosy exhibits a wide spectrum of presentations, varying from the tuberculoid to the lepromatous pole, with immunologically unstable reaction states in-between, depending on the individual. Immune status.* Reactional states of leprosy itself maybe the initial presentation of leprosy in some cases. *We hereby report an untreated case of lepromatous leprosy in reaction mimicking deep fungal infection.*

Case Report: *A 58-year-old male patient, a septic tank cleaner, by occupation, presented to DVL OPD with* multiple, painful raised lesions all over the body associated with fever and generalized malaise

since 2 months. Lesions initially developed on the trunk, abdomen later progressed to involve face, extremities, became pustular followed by ulceration and crusting. Fever was intermittent in nature, more in the evening. History of significant weight loss over the past 6 months. On examination: Generalized tender lymphadenopathy involving right posterior cervical, left axillary, bilateral inguinal lymph nodes. Cutaneous examination revealed multiple pustules, and nodules over the face, ears, trunk, abdomen, both upper limbs and lower limbs. Multiple ulcers with necrotic crusting present over the face, trunk and abdomen. On palpation the lesions were warm, tender, firm in consistency. DDs of deep fungal infection, atypical mycobacterial infection, and leprosy in ENL were considered.

KOH mount for fungal elements came negative. Pus culture and gram stain were negative. Sputum for AFB was negative. Chest X-ray was normal. Slit skin smear showed a bacillary index of 4+. Skin biopsy and histopathology from the nodule revealed thinned epidermis with flattened rete ridges, clear grenz zone and multiple foamy macrophages, few neutrophilic aggregates in the deep dermis. Patient was started on (WHO)MB-MDT and Tab. Prednisolone 40mg in tapering doses and is yet to be followed up.

Conclusion: *We describe a case of lepromatous leprosy in erythema nodosumnecroticans and as the patient had no previous evidence suggestive of leprosy it was difficult to diagnose the condition clinically.* Hence it is important to have a high index of clinical suspicion of leprosy and initiate prompt treatment especially in the setting of lepra reactions as, the disease can mimic many diverse unrelated conditions.

5. MIXED INFECTIONS OF SPOROTRICHOSIS AND TRICHOPHYTOSIS IN A HANSENS PATIENT

Shilpa Mary Philip (2nd year PG), Dr. Nippa Devi (Assistant Professor), Dr. D Indira (Associate Professor), Dr. T Rajeev Singh (Professor and Unit Chief) Dr. A Venkata Krishna (Professor and HOD)
Department of DVL,Osmania Medical College, Hyderabad

Introduction: The immune suppressed patient is vulnerable to develop mixed and invasive infections of various etiologies. A mixed infection of sporotrichosis and Trichophytosis in a patient of Hansen's has not yet been documented. Herein we present a case of a 55-year-old male patient of Hansen's who presented with subcutaneous nodules, ulcers and an abscess localized to the right upper extremity which was proved to be a mixed infection of Sporotrichosis and deep dermatophytosis due to Trichophyton.

Case Report: A 55-year-old male, farmer by occupation who was a known case of Hansen's on MB MDT and oral prednisolone (for Type-2 reaction) for six months presented with complaints of multiple nodules, a few of which ulcerated, localised to the right upper extremity of one-year duration. A known diabetic with a history of minor trauma to the right upper limb 1 year back, he had been put on multiple courses of antibiotics, but lesions continued to slowly progress in number.

Dermatological examination: Multiple, discrete, firm, non-tender, subcutaneous nodules, few of which were ulcerated, arranged in a contiguous pattern over right upper limb.

A plaque with peripheral scaling, underneath which, a soft fluctuant swelling was present, over the extensor aspect of forearm which yielded pus on aspiration.

Incisional biopsy of a nodule - PAS stained yeast like structures with hyphae, thus pointing towards a diagnosis of Sporotrichosis.

Pus and tissue culture done twice- exuberant growth of Trichophyton species in SDA. He was started on Tab. Itraconazole 200mg OD and showed marked clinical improvement within first three weeks of starting therapy.

Discussion: Since the patient is in an immunocompromised state due to oral steroids, diabetes he developed a deep dermal dermatophytosis, most common pathogen for which is Trichophyton. He also contracted a Sporotrichosis infection as substantiated by his occupation, trauma history and histopathology. The failure of Sporothrixschenki to grow in culture could be attributed to trichophyton being the dominant fungus which rapidly proliferated in the culture medium to give a diagnosis of Trichophytosis.

TIME : 12 – 1PM

1. EFFICACY OF MIMICKING B AND T CELL EPITOPES OF MYCOBACTERIUM LEPRAE AND HOST AS PREDICTIVE BIOMARKERS FOR PATHOGENESIS OF TYPE 1 REACTION IN LEPROSY

V.K. Pathak[1,2], I. Singh[1], S. Singh[2] , U. Sengupta1

1. Stanley Browne Laboratory, TLM Community Hospital, Nand Nagari, Delhi

2.Department of Biotechnology, GLA University, Mathura, UP

Introduction: Several Mycobacterial infections including leprosy and tuberculosis are known to evoke autoimmune responses by modulating homeostatic mechanism of the host. Presence of several autoantibodies which include rheumatoid factor, antinuclear factor, collagen, thymocyte, ^{2}2 microglobulin, keratin, myelin basic protein (MBP), and myosin have been earlier reported in leprosy patients.

Aim: The aim of the present study was to detect the role of mimicking epitopes of M. leprae and host components in the induction of autoimmune response in leprosy.

Material and Methods: We predicted and synthesized a total of 15 mimicking linear B cell epitopes (BCE) and 9 T cell epitopes (TCE) of keratin and MBP. Humoral and cell mediated immune response against these epitopes were investigated in 50 non-reaction (NR), 50 type 1 reaction (T1R) leprosy patients and 20 healthy controls.

Results: We observed significantly higher levels of antibodies against 8 mimicking BCE in T1R in comparison to NR leprosy patients. Among the eight mimicking BCE, three BCE of HSP65 (HSP1; $p<0.00001$, HSP4; $p<0.0001$, and HSP5; $p<0.01$) and three BCE of keratin (Ker1; $p<0.00001$, ker2; $p<0.00001$ and ker4; $p<0.00001$), one BCE of MBP with 50S ribosomal protein (MBP50SB1, $p<0.03$) and one BCE of MBP with lysyltRNAsynthetase (MBPLMB2, $p<0.00001$) were found to be significantly associated with T1R. On the other hand, it was observed that one TCE of MBP, lysyltRNAsynthetase (MBPLMT2, $p<0.03$), was significantly associated with lymphocyte proliferation in T1R.

Discussion: A total of eight mimicking BCE of the proteins keratin and MBP were found to be associated with T1R. Our result suggests that the mimicking epitopes plays a key role in induction of autoimmune response in leprosy and inflammatory episodes of T1R in leprosy.

Conclusion: In Conclusion, these molecules/epitopes may be employed as a biomarker to predict the inflammatory episodes of T1R in leprosy.

2. DERMASCOPY: A DIAGNOSTIC TOOL IN LEPROSY

Vinay Keshavamurthy[1], MD, DNB, MRCP (SCE); Divya Kamat,[1] MD;
Debajyoti Chatterjee[2], MD, DM; Tarun Narang[1], MD, MNAMS; Sunil Dogra[1],MD, FRCP
Department of Dermatology, Venereology, Leprology[1], Post Graduate Institute of Medical Education and Research, Sector 12, Chandigarh, India
Department of Histopathology[2], Post Graduate Institute of Medical Education and Research, Sector 12, Chandigarh, India

ABSTRACT

Background: Leprosy is a chronic granulomatous infection with varied clinical presentations. In this study, we aimed to describe the dermatoscopic features of the entire spectrum of leprosy and to correlate with clinical and histopathological findings.

Methodology: This was a prospective observational study of treatment naïve leprosy patients over a period of 1 year. The study patients were categorized as per Ridley-Jopling classification based on clinical, slit skin smear and histopathological findings. Most representative lesions were photographed, evaluated by dermatoscopy and were biopsied.

Results: A total of 30 patients (21 males and 9 females) were recruited; 2 cases of tuberculoid leprosy, 12 cases of borderline tuberculoid (3 with type 1 reaction), 8 cases of borderline lepromatous, 6 cases of lepromatous leprosy (3 with type 2 reaction) and 2 cases of Histoid leprosy. The dermatoscopic features consistently seen were yellowish-orange areas and vascular structures like linear branching vessels and crown vessels correlating with the presence of dermal granulomas, inflammation and dilated vessels. Broken pigment network, white chrysalis like areas were seen in addition. Tuberculoid spectrum also had absence of or diminished hair follicles and eccrine duct openings correlating with presence of peri-appendageal granuloma and appendageal destruction. Scaling and follicular plugs were other features in lesions of type 1 reaction.

Conclusion: Yellowish-orange areas and vascular structures are the common dermatoscopic features of leprosy. Broken pigment network and paucity of appendageal structures are additional specific features.

3. TRENDS OF THE STEROIDS COMPLETION AMONG THE NEURITIS PATIENTS

Tasmin Jhan (Physiotherapist TLM community Hospital Delhi-93)
Dr. Rajeev Joy Nathan (Medical superintendent, TLM Community Hospital Nandnagri Delhi-93)
Pankaj Gupta (Physiotherapist TLM community Hospital, Delhi-93)
Dr. MS Raju (Social Scientist, The Leprosy Mission Trust India)

Introduction: Neuritis can occur anytime in leprosy. Neuritis can occur before treatment, during treatment and after completion of the treatment. Patients with reaction and neuritis sometimes require admission and course of steroid therapy. Many patients who are selected for the steroids therapy due to various reasons in leprosy do not complete the treatment and default the course of the treatment.

Aims and Objective: The aim of this paper is to show and demonstrate average number of the defaulter patients the from the steroid therapy over the period of five years from 2015 to 2019.

Materials and Methods: Data was collected retrospectively from the Hospital records system of the TLM Community Hospital in Shahdara Delhi. The data collected for the period from the year 2015 to

2019. As per the protocol of the hospital all the patients who are selected for the steroid therapy must undergo counselling sessions regarding the steroid therapy and also regarding the continuation of the steroid treatment.

Results: From the data it can be observed that in our hospital on an average around 40 patients' reports with the Neuritis conditions. In order to improve the nerve function of the patient's course of the steroid therapy is required. Patients are selected accordingly and they are required to undergo the counselling sessions. During the year 2016 out of the 45 patients who were diagnosed to be suffering from Neuritis and for them steroid therapy was started 5 patients defaulted the course of treatment. In the year 2017 only 6 patients defaulted the treatment out of 42. In the year 2018 only 1 patient defaulted the treatment out of 62. In the year 2019, out of 38 patients 7 patients defaulted the treatment. In 2020 out of 31 patients 6 patients defaulted the treatment.

Discussion: Among the neuritis patients, who were selected for the steroid therapy around 16% of the patients defaulted the steroid therapy treatment.

Conclusion: From the study it can conclude that with proper counselling before the start of steroid therapy treatment the defaulter rate can be reduced substantially.

4. IS THIS CASE- ERYTHEMA NECROTICANS (OR) LUCIO PHENOMENA (OR) CUTANEOUS POLYARTERITIS NODOSA

Dr. Gopi Krishna, Dr. J Vijayashree, Dr. V Kiran Kanth, Dr. Ch Dileep Chandra, Dr. I Gowthami

Introduction: Erythema necroticans is rare, peculiar reaction occurring in lepromatous leprosy patients (type 2 reaction).Ittends to occur later during course of treatment when lesions appear quiescent & bacilli in skin smear are granular. Lucio Phenomena is unique reaction seen in untreated patients of Hansen's disease & encountered in defense mechanism deficient individuals with unhindered multiplication of bacilli. Cutaneous PAN is an idiopathic vasculitis of medium sized Vessels characterized by tender nodules, livedo reticularis & sometimes ulceration. The above three conditions can present with tender necrotic ulcerations on legs which led to suspicion.

Case report:A 74-year-old female named Chinnamudu, who is a house wife & lives in village near by Srikakulam. Patient came to Dermatology OPD, Gems, Srikakulam complaining of necrotic ulcers over legs since 2 days.pt initially noticedred painful nodules over leg 4 days back. A day later, they became vesiculated, soon ulcerated & necrotized to attain Present state. she has taken red blister pack for 5 years ,15 years back.she was known diabetic. o/e, multiple necrotic ulcers of various sizes present over legs sparing hands,trunk, scalp, axilla, groins, & perineum. Bilateral swelling of foot Present. Axillary lymphadenopathy +ve. Besides this, there is infiltration of ears, thickening of ulnar nerve, glove & stocking type of anesthesia.We thought initially the above features must be residual findings of treated Hansen's,evaluated in the line of cutaneous PAN in oldtreated patient of Hansen's. But After 3 days of admission, she developed similar lesions in crops over hands, trunk, face. This madeus suspicion, now we investigated in the line of erythema necroticans (relapse of Hansen's). Slit -skin smear from 3 sites (earlobes, nasal lesion site)revealed presence of numerous solid & few granular red colored bacilli with bacteriological index -5+. Biopsy revealedinfiltration with neutrophils in lower dermis & hypodermis infiltrating vessel wall -vasculitis. The invaded blood vessel undergoes necrosis & obliteration of lumen leading to cleft formation. Haemogram shows- Hb- 6g/dl,TLC-19,900cells/cum. RFT- normal, LFT-ALP-elevated, Sr.albumin-decreased 2g/dl.pus culture &sensitivity done in which E.coli was isolated for which gentamicin, amikacin, linezolid were sensitive .VDRL, HIV, Hep. B -non reactive P-ANCA, C-ANCA were negative.

Discussion: Lucio phenomena was ruled out because it is present in untreated patients, lesions would be sparing face,trunk (those sites were involved in our case) & unique in Mexicans. Initial presentation of crops of nodules & necrotic ulceration overlower leg led to suspicion of Cpan. Development of lesions in crops Over face,upper limb, trunk-ANCA & P-ANCA -ve, sss-5+, favorable biopsy findings of EN with the background of residual signs with the past H/o of MDT,finally we confirmed this case as Erythema Necroticans in a past treated case of Hansen's.As an endemic district,we should have a suspicion of Hansen's. We have encountered many unusual presentation & this case report was made one of those rarity. Conflicts of interest: - Nil.

5. HANSEN'S PRESENTING AS UNMASKING TYPE OF INFECTIOUS IRIS

Dr. Abishek Kumar K V (2nd Year PG); Dr. JVDS Prasad (Professor and Unit chief);
Dr. D Sudha Vani (Associate Professor); Dr. B Raghu Kiran (Assistant Professor);
Dr. V Sirisha (Assistant Professor), Dr. A. Venkata Krishna (Professor & HOD.)
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Introduction: Immune reconstitution inflammatory syndrome (IRIS) is appearance of new condition or paradoxical worsening of previously known condition after ART (Anti- Retroviral Therapy) due to restored immunity to specific infectious and non-infectious antigens. There are limited number of case reports with HIV and M. Leprae coinfection.

Case: 35-year-old male, known case of HIV for 2 months came with complaints of red raised lesions over trunk and extremities, 6 weeks after starting ART, associated with swelling of legs, low-grade fever and joint pains. On examination there were multiple erythematous scaly plaques involving face, whole of trunk, arms, forearms, buttocks, thighs and legs. Few hyper pigmented macules present over both palms. Bilateral ear infiltration noted. Multiple well defined dome shaped papules with umblication present around right eye. Left ulnar nerve was enlarged with tenderness on palpation. On investigation, VDRL was positive in 1:2 dilutions with a positive TPHA. Slit Skin Smear showed BI of 2.33 + and MI of 0%. Skin biopsy showed presence of multiple granulomas composed of lymphocytes, histiocytes, plasma cells in dermis with perivascular and periadnexal lymph mononuclear infiltrates suggestive of Hansen's. Patient was diagnosed as BT Hansen's downgrading to BL Hansen's in type-1 reaction.

Conclusion: With current NACO recommendation to TREAT ALL, irrespective of CD4 count or clinical stage in HIV, the presentation of IRIS has also increased. Though coinfection of Hansen's and HIV is not so common, we should watch out for triggering of reaction or worsening of leprosy in these patients.

6. LEPROSY RELATED KNOWLEDGE AMONG TRIBAL POPULATION IN TWO DISTRICTS OF KERALA

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AFFILIATIONS: Department of Community Medicine, Pushpagiri Institute of Medical Sciences & Research Centre, Tiruvalla, Kerala

INTRODUCTION: India achieved the target of elimination of leprosy as a public health problem in 2016, but still accounts for 60% of new cases globally each year. Low voluntary reporting leads to hidden cases, mainly due to a lack of disease-related knowledge which may be even more in tribal areas.

AIMS &OBJECTIVES: To assess the leprosy-related knowledge of residents of tribal areas in two districts of Kerala and associated socio-demographic characteristics

MATERIALS AND METHODS: We conducted house to house survey in 10 selected tribal colonies of Pathanamthitta and Idukki districts, selecting 104 adults, one from each household by systematic random sampling. They were interviewed with the help of local and institutional volunteers, using a content validated, pilot tested questionnaire in vernacular language (score 0-10).

RESULTS: The participants were in the age group 20-70 years, with 43% males. The mean knowledge score was very low in both districts, 1.0 (median); 3.0in Pathanamthitta and 0.0 in Idukki ($p< 0.001$). Tribal colonies in Pathanamthitta reported better knowledge on symptoms of leprosy like hypopigmented patches (28%) than in Idukki (5.6%). The availability of treatment and cure for leprosy was known to 40% of the participants in Pathanamthitta while only 24.1% were aware of it in Idukki. Age, sex and education were not associated with knowledge score.

DISCUSSION: Our study showed poor level of knowledge among the study participants. A study in two leprosy endemic countries showed low level of knowledge similar to our study. A study by Muthuvel et al identified one of the reasons for the delayed presentation and diagnosis of leprosy in India to be poor awareness of its symptoms.

CONCLUSION: This low level of knowledge on leprosy in the tribal colonies needs to be addressed so that they can recognize the symptoms for early diagnosis and treatment to prevent further transmission.

Funding: ICMR

TIME: 4PM - 5PM

1. ROLE OF HIGH RESOLUTION ULTRASONOGRAPHY (HRUS) IN LEPROUS NEUROPATHY

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Dr. Pooja Agarwal, Assistant Professor, Smt. SCL Hospital, Ahmedabad

Introduction: Leprosy is a chronic granulomatous disease caused by Mycobacterium leprae which can lead to functional and anatomical changes in peripheral nerves and may leads to disability. Leprosy presents as a ranging from the localized paucibacillary tuberculoid form (TT) to the generalized multibacillary, lepromatous leprosy (LL). Neurological involvement may start before diagnosis, during the treatment or even after the treatment has ended, leading to functional impairment & deformities. In general practice, nerve thickness can be detected by palpation but finding is totally subjective and require practical training. Recently ultrasonography has been used to document nerve thickness, detect abnormality in echotexture of the nerve and endoneural flow of blood. The goal in the management of leprosy is the prevention of disability via early detection of nerve impairment.

Aims and objectives: To study concordance between clinical nerve examination with high resolution ultrasonography **.**To study role of ultrasonography in lepra reaction

Materials and methods: Study design: Open non randomised cross sectional analytical cohort.Study period: 6 months. Study population: Patients with Hansen's disease diagnosed as per WHO Criteria are attending outpatient department of Dermatology in our tertiary care centre;

Discussion: We performed a bilateral US if ulnar, median, radial cutaneous nerve, lateral popliteal nerve, and posterior tibial nerve in 15 patients. The nerves were significantly thickened in leprosy patients. Out of 15, 11 patient had ulnar nerve enlargement. Increase in neural vascularity by CD imaging was present in a 1 patient with type 1 reaction. Significant correlation was observed between clinical parameters of grade of thickening, sensory loss and muscle weakness and US abnormality of nerve cross sectional area, echotexture and endoneural flow.

Conclusion: The clinical examination of enlarged nerve in patient is subjective and inaccurate, whereas sonography provides an objective measure of nerve damage by showing abnormality of nerve cross sectional area, echotexture and endoneural flow. This damage is sonographically more and include more nerves than clinically expected.

2. A CASE OF HISTOID HANSEN'S DISEASE WITH TUBERCULOID SPECTRUM HISTOPATHOLOGICAL FINDING – A RARE CASE REPORT

Dr.A.Ajith, Dr.P.Nirmaladevi, Dr.P.Sivayadevi, Dr.A.N.M.MaalikBabu,
Dr.Judith Joy S, Dr.P.Kalyanakumar
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Introduction: Histoid Hansen's disease is an uncommon variant of lepromatous leprosy and it was first described by wade in 1960.Its incidence among leprosy patients in India is estimated to be 2.79 to 3.60%. The incidence of histoid leprosy is found to be 8.7% among lepromatous leprosy cases. Clinically, Histoid leprosy is characterized by cutaneous and/or subcutaneous nodules or papules, which are usually painless, discrete, firm, smooth, globular and skin colored to yellowish brown, with normal appearing skin surrounding it.

Case report: A 24 years old female, with history of skin colored raised skin lesions over face, neck, both ears for the past 4 weeks. Patient was apparently normal 2 years back after which she developed scaly skin lesions over both upper and lower limbs associated with swelling of hands and feet.For this she consulted in TVMCH OPD and diagnosed as a case of ichthyosis and treated accordingly.Now for past 4 weeks, she developed raised skin lesions over both ears first followed by face,neck.H/O nasal stuffiness,discharge,epistaxis were present.H/O painful swelling of hands and feet present.H/O slippage of footwear.H/O impaired touch and pain sensation over hands, forearms, lower legs, foot.On physical examination, multiple well defined skin colored succulent juicy nodules present over helices of both ears, face, neck and few nodules over back, chest, arms, thighs. Symmetrical, non-tender, mild thickening of bilateral ulnar nerve, radial cutaneous nerve and common peroneal nerve were present onpalpation. Glove and stocking anesthesia present. Mild weakness of Extensor hallucis longus & Extensor digitorum.Trophic ulcer was present.Clinical diagnosis of polar lepromatous Hansen's disease presenting with nodules/? Histoid variant has been made. Slit skin smear taken from standard sites were positive with BI 6. Skin biopsy findings are thinned out epidermis and underlying dermis shoes periadnexal, perivascular and perineural serpentine granuloma composed of epithelioid cells,histiocytes and lymphocytes.Fitefarraco stain was positive for acid fast bacilli.

Conclusion: The novelty of the case is highlighted by the fact that it started as ichthyosis and later developed as Histoid Hansen's disease. Skin biopsy showed granuloma composed of epithelioid cells which usually occurs in tuberculoid spectrum Hansen's disease.

3. A CASE OF HANSEN'S DISEASE MASQUERADING AS POLYMORPHIC LIGHT ERUPTION

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Introduction: Hansen's disease, one of the oldest diseases of mankind, still remains an important public health problem, with majority of cases being reported in India. The clinical manifestations of leprosy are so variable and diverse and can mimic variety of unrelated diseases, justifying the description "the great imitator". We are reporting one such case of Borderline Lepromatous Hansen's Disease with Type 2 reaction which masqueraded as Polymorphic Light Eruption.

Case report:A 25 years old female,with history of hypo pigmented patches over her both forearms, diagnosed to be a case of polymorphic light eruption and treated accordingly in a private hospital for the past 5 years with no significant improvement came to our dermatology OPD with complaints of red raised skin lesions over both forearms, arms and thighs along with constitutional symptoms like fever and joint pain on and off for the past 20 days. History of mild impaired sensation of touch over the hypo pigmentedpatches present for the past one year. On physical examination, multiple ill-definedhypo pigmented macules and patches of varying sizes present over the extensor aspect of both forearms, arms in the exposed areas sparring the covered areas with mild impaired sensation of temperature, pain and touch. Multiple well to ill-defined erythematous tender nodules of varying sizes from 2×3 cm to 5 X 4 cm present over both forearms, arms and thighs.Asymmetrical, mild to moderate thickening of bilateral ulnar nerve, radial cutaneous nerve and common peroneal nerve were present with tenderness on palpation. Clinical diagnosis of Borderline Lepromatous Hansen's Diseasewith Type 2 Reaction has been made. Slit skin smear taken from standard sites arenegative. Skin biopsy findings are consistent with Borderline Lepromatous Hansen's Disease with Type 2 Reaction (Erythema NodosumLeprosum).Fitefarraco stain is positive for acid-fast bacilli.

Conclusion: The novelty of the case is highlighted by the fact that it simulated a totally unrelated, fairly common photodermatoses in its clinical behavior. This reemphasizes the importance of keeping a high index of suspicion for Hansen's disease in otherwise benign photodermatoses.

4. PROFILE OF NEW DIAGNOSED CHILD LEPROSY CASES AND COUNSELLING REQUIREMENT

SinphiaAjith[1] Pankaj Gupta[2] Rajeev Joy Nathan[3] M.S. Raju[45] Counsellor
[6] Physiotherapist , [2] Superintendent , [3]Social Scientist, TLM Research Resource Centre, The Leprosy Mission Trust India, TLM Community Hospital Nandnagri Delhi-93

Introduction: Leprosy is still a problem in a country like India. India accounts for 58% of the total leprosy cases reported globally. Leprosy among children is still a problem as many child cases are diagnosed with leprosy every year. Those children who are diagnosed often leave their education due to social stigma

and related problems. TLM tertiary care hospital at metro urban city of New Delhi have made continued efforts to provide counselling services to all the patients visit for treatment. This study is to show the profile of child cases who seek counselling from the counselling center.

Aims and Objective: To document the education and gender profiles of newly diagnosed child cases and counselling requirements.

Materials and Methods: Data was collected from the records of the counselling department of the TLM community Hospital, which was recorded by the counsellors and secondary data of case registers.

Results: Out of the total 53 cases studied so far 39 were male child and 14 were female child. Out of these 53 cases 38 (27 male child and 11 female child) were enrolled in schools and 15 children were either never enrolled in schools or were drop outs.

Out of total newly diagnosed children and visited counselling centre 69% are males and 78% are females. On aggregate enrolment rate is 71% which is comparatively 9% higher among females than males and on aggregate 28% dropped out which is slightly (1%) lesser among females than males. Further this paper also discusses the role of counselling in restarting the schooling of the drop out cases.

Discussion: From the data collected it is seen that still many children are not enrolled in proper schooling. This study gives a small glimpse of the real situation regarding the schooling. Although every child has right to education in India and also every effort is made by various governmental and non-governmental organization towards child education still many children are not enrolled in schooling and leprosy plays a significant role.

Conclusion: From the study it can concluded that only medical management of the child cases diagnosed with leprosy is not going to solve the problem. We need to put the extra effort through proper counselling of the parents to make sure that every child must be enrolled in the schools for education prevent dropouts in both the genders.

5. TYPE 1 LEPRA REACTION MIMICKING AS BULLOUS FIXED DRUG ERUPTION

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Dr.G.Purnima(Associate Professor)

Introduction: Leprosy reactions are immunologically mediated episodes which interrupt the relatively uneventful chronic course of disease depending on the immune status of the individual. They manifest as erythematous edematous tender plaques or evanescent tender erythematous nodules with or without neuritis. Bullous type of reactions is rare in leprosy. We hereby report a case of borderline tuberculoid leprosy with bullous reaction.

Case Report:*A 24-year-old male patient, resident of vuyyuru presented with bullous lesions over right ear and right sole with redness, pain &swelling associated with fever, joint pains, edema of both feet since 10 days. He was a known case of Borderline tuberculoid leprosy & completed MB MDT 1 year back. Patient gives history of Dapsone & Rifampicin intake for another 6 months after which he developed sudden erythema & pain followed by fluid filled lesions over the preexisting lesions of leprosy associated*

with fever & joint pains. On examination: Patient is toxic with bilateral pitting type of pedal edema noted. Cutaneous examination revealed multiple well defined erythematous bullae of size measuring approx.1*1cm present over pinna & helix of right ear. A single well defined erythematous plaque with central vesicle surrounded by edematous ring of size measuring 3*2cm present over medial aspect of right sole. There were no mucosal erosions. On palpation the lesions were warm & tender. Nikolsky sign was negative. Nerve examination revealed bilateral ulnar & common peroneal nerve thickening and tenderness. No evidence of any motor dysfunction or deformity. Routine investigations revealed raised ESR & bilirubin levels. Tzanck smear was negative. Slit skin smear was negative. Skin biopsy on histopathology showed dermal edema with few ill-defined granulomas & no bacilli was demonstrated on special stain. Based on the above findings the diagnosis of borderline tuberculoid leprosy with type 1 reaction was made.The patient was started on oral prednisolone 40mg, continued in tapering doses. On further follow up the lesions subsided with desquamation.

Conclusion:Bullous eruptions are rarely observed in leprosy. This patient had borderline tuberculoid leprosy with type 1 lepra reaction with bullous eruption after completing MB MDT which is rare. However, such a presentation need to be differentiated from other causes of bullous eruption.

6. IS GRANULOMATOUS CHEILITIS: A SEPARATE ENTITY OR MANIFESTATION OF LEPROSY?

Dr. Shefali V. Patel, 2nd year resident, Dr. Santoshdev P. Rathod, Professor and Head of Unit, Dr. Pooja Agrawal, Assistant Professor,Smt. NHL Municipal Medical College, Ahmedabad

Introduction: Granulomatous cheilitis is a rare, idiopathic, inflammatory disorder which usually affects young adults. Several aetiologieshave been proposed: genetic, inflammatory, allergic and microbial. Oral leprosy is classified under the term Oro-facial granulomatosis which is characterized by noncaseatinggranulomas affecting the soft tissues of oral and maxillofacial region. The most common clinical presentation of Oro-facial granulomatosis is persistent swelling of one or both lips.

Clinical Summary:A 65-year-oldmale, presented with complain of swelling over upper lip since 1 year. History of occasional slippage of footwear, dropping of objects from hands and joint pain was present. There was no history of fever, epistaxis or any food or drug intake before development of swelling. Examination showed a single, firm, nonmobile, nontender swelling approximately 1.5x1.5cm in size present over upper lip. Temperature sensation was diminished on both palms and below both ankles. Ulnar nerves were palpable bilaterally without tenderness. Punch biopsy taken from the lesion was inconclusive and AFB stain was negative. The patient was treated with anti-inflammatory drugs with no significant response. The patient was started on minocycline (100mg) for one month.no improvements seen. PCR for mycobacterium leprae was done which showed presence of mycobacteria. The patient has been started on MDT since 7 months with minimal response.

Conclusion: It appears that granulomatous cheilitis may be an incidental finding and it is not always a manifestation of leprosy. PCR for M. leprae may be positive incidentally in patients with orofacial granulomatosis in a leprosy endemic country like India. So caution should be exercised while starting anti-leprosy treatment.

Key Words: Granulomatous cheilitis, Non caseating granulomas, swelling, anti-inflammatory drugs, Biopsy, PCR, MDT.

1.SERUM PROTEOME ANALYSIS OF CONTACTS OF LEPROSY CASES FOR EARLY DIAGNOSIS OF LEPROSY

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Introduction: Diagnosis of early leprosy is a major obstacle to disease control which still relies on clinical signs and has been compromised due to lack of specific markers or tests. Biomarkers play a major role in early diagnosis and proteins being the functional moiety could be attractive biomarkers. Few preliminary reports regarding serum proteome of leprosy patients undergoing reactions exist however, our knowledge regarding the proteome of contacts, which constitute the highest risk group for leprosy development, is not complete.

Aims: The study aimed to analyze the protein biomarkers that are differentially expressed in serum of contacts of leprosy cases using proteomics approaches.

Methods: Serum was separated from blood withdrawn from subjects by venipuncture. Highly abundant proteins, albumin and IgG were depleted from the serum using Aurum serum protein mini kit along with 2DE clean kit. One and two-dimensional gel electrophoresis (2DGE) of serum samples were carried out to analyze the protein profiles. After 2DGE, protein spots were analyzed by PDQuest 2-D Analysis Software.

Results & Discussion: We analyzed the serum proteome of contacts of leprosy cases and compared with the serum profile of patients affected with leprosy. SDS-PAGE gel clearly showed the depletion of highly abundant albumin and IgG from the sample. A number of proteins were visible on the gel lanes with slight difference. However, proteins with different pI but same mass could not be separated. In order to augment the separation, serum proteins were separated on IPG (Immobilized pH gradient) strips of length 7cm and pH 3-10. On analyzing the 2D gels, few protein spots were found to be over expressed differentially in the serum of contacts of leprosy cases.

Conclusion: We were able to pick up some differentially expressed proteins employing 2DGE. These proteins might be of diagnostic importance for detecting early cases of leprosy and thus will prevent disability and further transmission.

2. IDENTIFICATION OF BIOMARKERS FOR EARLY DIAGNOSIS OF LEPROSY USING TRANSCRIPTOMICS APPROACH

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Introduction: Comparative host-transcriptomics has immense utility in finding biomarkers in several diseases. Laboratory diagnosis of leprosy is challenging due to complex factors related to host genetics and long incubation period of disease. These peculiarities make the human-transcriptomics studies in leprosy very difficult owing to several confounding factors such as uniformity and duration of exposure/ infection. The nine-banded armadillo, the only animal model of leprosy, exhibits differential susceptibility

to leprosy, with ~20% animals able to resist experimental inoculation of M. leprae. The data sets of M. leprae infected armadillos and cell lines were availed from database.

Aims & Objective: To compare the gene expression profiles upon M. leprae infection for identifying the biomarkers associated with leprosy progression using RNA-Sequencing.

Materials & Methods: Transcriptome profiles of PBMCs collected and cryo-preserved at 4-month post-infection from the resistant and susceptible animals were compared using RNA-Seq& bioinformatics to deduce the list of differentially expressed genes. Likewise, the gene expression profile in cell lines after various time points post M. leprae infection were compared with the uninfected cell lines. The list of candidate genes from both the datasets were compared for overlap to identify key genes common in leprosy progression.

Results & Discussion: This revealed differentially expressed genes which are involved in host innate immunity and gene regulation. The analysis of the affected pathways has revealed gene networks and potential biomarkers of disease progression in a susceptible host that can be useful for early detection of leprosy. Bioinformatic analysis and comparison of differentially expressed genes by literature mining has been performed revealing several genes which have been previously implicated in leprosy pathogenesis (such as C-X-C motif chemokine ligand CXCL9 /CXCL10, myelin protein zero MPZ etc) and have been found to be differentially expressed upon infection. The data analysis revealed 14 candidate genes which may likely associate with progression of leprosy and thus may potentially be helpful for its early detection.

Conclusion: The study of the relative expression levels of these genes indicate their role in leprosy pathogenesis. The comparison of the study results with previously reported findings is being carried out after which candidate genes will be validated by qPCR.

3. A FOUR-YEAR RETROSPECTIVE STUDY SHOWS INCREASING RATES OF ANTIMICROBIAL DRUG RESISTANCE IN ENDEMIC REGION IN INDIA FOR M. LEPRAE

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2.National Institute of Virology (ICMR), Pune

3.The Leprosy Mission Hospital, Purulia, West Bengal

Background: Although Global efforts to control leprosy by MDT have led to a significant decrease in the number of registered patients, new cases are appearing at a same rate (> 1 lakh cases) every year for the last 10 years indicating the ongoing active transmission of the disease. Current recommended control measures for treating leprosy with MDT are designed to prevent the spread of drug-resistant M. leprae.

Aims & Objective: Aim of the present study to find out trend of drug resistant strains of M. leprae from relapsed leprosy patients from an endemic region Purulia, West Bengal. Data on drug resistance is important for achieving zero leprosy target. Methods: We performed a retrospective analysis over years (2017 - 2020) of the drug sensitivity profiles of clinical isolates of leprosy patients in TLM Hospital, Purulia, West Bengal. We screened a total of 440 relapsed leprosy cases from The Leprosy Mission Hospital, Purulia, West Bengal between 2017 and 2020. Slit- skin smears were collected from all the subjects. DNAs were extracted and analyzed for PCR targeting genes associated with drugs (Rifampicin, Dapsone and Ofloxacin) in M. leprae. Thai-53 (Wild-type) and Zensko 4 (MDR) strains were used as reference strains.

Results: We detected an increase in resistance rate to rifampicin (2% in 2017 vs 12.3% in 2020), Dapsone (0.7% in 2017 vs 17.8% in 2020), and Ofloxacin (2% in 2017 vs 19% in 2020). Further, we also observed resistance to any 2 drugs and all three drugs in these years. This increase in resistance level is an alarm as it might compromise empirical treatment of leprosy patients in a setting with limited access to laboratory testing.

Conclusions: The study showed increasing trend of resistant strains of M. leprae in relapsed leprosy patients from endemic regions of India. Based on the above finding we strongly recommend setting up for an active drug resistant surveillance mechanism urgently in the country to stop the transmission of drug resistant M. leprae in the community.

4. MOLECULAR SCREENING OF NEWLY DIAGNOSED LEPROSY CASES FOR DRUG RESISTANCE IN M.LEPRAE

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Introduction: Purulia is one of the endemic districts in West Bengal with ANCDR of 3.0/100000. It has been noted from earlier experience that any therapeutic control measure for prevention of disease with antibiotics ultimately leads to emergence of drug resistance. Therefore, a surveillance mechanism should function as a 'watch dog' for identification of drug resistance.

Aims and Objective: This study was undertaken to screen for M. leprae primary drug resistance to Dapsone, rifampicin and Ofloxacin by PCR sequencing of folP1, rpoBand gyrA genes respectively in new patients of leprosy from Purulia.

Materials and Methods: In the present study, slit- skin smears samples were collected from 161 newly diagnosed leprosy cases from TLM Purulia hospital in the duration of 2017-18 and from RML hospital in the duration of 2020-21. DNA was extracted from these samples and were analyzed for the genes associated with drug resistance in M. lepraegenome. Wild-type strain (Thai-53) and mouse footpad-derived drug-resistant (Z-4) strain was tested as reference strains.

Results: Out of these 161 cases 5% were found to be associated with Rifampicin resistance as revealed by mutations in rpoB region. We also observed 3.1% and 13% of the M. leprae DNA samples showing mutations that was associated with resistance to Dapsone and Ofloxacin, respectively. One patient each was resistant to Rifampicin and Dapsone and Rifampicin and Ofloxacin, respectively.

Discussion and Conclusion: Results from this study revealed the presence of resistance to anti-leprosy drugs in new cases of leprosy. The findings of this study show the emergence of primary resistance to rifampicin in new cases of leprosy. The emergence of new cases with resistance to ofloxacin indicates that resistant strains are actively circulating in endemic regions of India from secondary resistance cases and infecting the naive population at risk.

5. CLINICAL, BACTERIOLOGICAL AND MOLECULAR OBSERVATIONS IN RELAPSES IN LEPROSY

Pai V V,[1]WakadeAnju,[1]Singh Itu[2]

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Introduction / Objective: Despite leprosy been declared eliminated several events including relapses pose clinical, operational and epidemiological challenges. Emerging cases of multidrug-resistant M. leprae are threat to dream of zero leprosy and needs to be addressed with utmost priority. In our continued work on investigation of relapses, we share our experience on clinical, bacteriological and molecular observations in relapses.

Materials & Methods: In this investigation patients completed treatment and under follow up reporting with new lesions and /or recurrence of lesions attending/referred to Referral Centre of BLP Mumbai were subjected to detailed clinical, bacteriological assessment and investigated for drug resistance. From 2013 to 2021, we recorded 55 patients (7 females, 48 males) with new/recurrence of lesions or suspected relapse. Clinical assessment, bacteriological (BI and MI), screening for HIV, diabetes was done. Skin biopsy for histopathology and drug resistance was done. Slit skin smears collected in 70% ethanol. / Smear slides were sent to detect resistant strains. DNA was extracted and PCR performed for RLEP PCR for diagnosis. We analyzed DNA sequences of identified regions of M. leprae folP1, rpoB and gyrA, responsible for resistance to dapsone, rifampicin and fluoroquinolones, respectively. Out of 25 patients, 32 (58%) patients reported with new lesions,15(27%) had type 2 reactions, 3 (5%) with histoid like lesions and 5 (9%) with neural involvement.

Results: Thirty-One (56%) cases were smear positive on relapse of which27 had BI of >3+, with a mean RFT duration of 15 years. Among these 31, 11 were initially positive, in 19 initial smears not available and 1 was negative. MI recorded in 10 patients ranged from 1% to 18%. Twenty-four cases were smear negative relapses presenting with new lesions8 years after RFT. Among these 24, 10 were initially positive, in 4 initial smears unavailable and 10 were negative. Of 55 patients, 46 were investigated for molecular drug resistance, 35 were sensitive to rifampicin (RFP), dapsone (DDS) and ofloxacin (OLF). In the remaining 8,1 was resistant to dapsone (BI-neg), two were resistant to RFP (BI-neg, 5+) and 1 to both RFP & OLF (BI-neg), 4 were resistant to OLF (BI- neg,2+,5+,6+). Mean RFT duration in the resistant cases was 15 years. Reports are awaited in 3 patients. Histopathological studies revealed BT features in 16, BL in 13, LL in 8, 2 nonspecific and in 17 not done. Interestingly 15 patients presented with Type 2 reactions.

Conclusion: Multidrug resistance to two bactericidal drugs in a case of relapse is a cause of grave concern. Normally, drug resistance is suspected in smear-positive cases of relapse and detection of this type of multidrug resistance in a case with negative skin smears highlights the importance of undertaking drug resistance testing in all cases of relapse irrespective of smear status. Resistance to Ofloxacin is also matter of concern since it is used as second line drug. Detection and retreatment of relapses is therefore important to early interruption of chain of transmission and suitable line of treatment.

TIME: 11-12PM

1. ENHANCING ACCESS TO COVID TESTING FOR PEOPLE AFFECTED BY LEPROSY

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Introduction: The Government of India established a total of 877 COVID testing laboratories in the country. LEPRA-BPHRC is one of the ICMR and NABL accredited centres for COVID RT PCR tests. We noticed that People affected by leprosy are unable to access COVID-19 testing centres because of stigma, ignorance about test centres and travel cost. In this context we provided COVID-RTPCR tests to people affected by leprosy at their door steps.

Aims & Objectives:

- To provide RT-PCR tests to people affected by leprosy attending LEPRA referral centres and those residing in leprosy colonies.
- To create awareness on COVID-19.

Materials and Methods: Study period: October 2020 to December 2020. COVID -19 awareness programs were conducted in leprosy colonies in Hyderabad and Nalgonda. Community was mobilized for on-site sample collection for COVID-19 by CBOs and Health staff. Throat and nasal swabs were collected following the safety protocols of sample collection. Samples were processed at LEPRA BPHRC laboratory.

Results: Total number of tests done: 402 (M:231; F:169), General population: 76 (M:44; F:32)
COVID positives detected: 4 (1.0 %), COVID positives detected: 1(1.3%)

Discussion and conclusion: One percent of leprosy affected people tested have turned out to be positive for COVID (1.3% general population) during the study period. It is to be noted that the general trend of COVID positivity in India was going down at that period. This data suggests that leprosy affected people are more or less at the same level risk for COVID as the general population. Any other factors including the Cross immunity to SARSCoV-2 and its impact on leprosy is not in the scope of the present study.

2. IMPACT OF COVID-19 LOCKDOWN ON TREATMENT AND CARE SERVICES: SERVICE PROVIDER SURVEY OFPEOPLE AFFECTED WITH LEPROSY IN MADHYA PRADESH, INDIA

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Introduction: The lockdown announced as a measure to curb the spread of COVID-19 virus has led to restricted movement. With clinics, outpatient departments closed and with confinement to homes, protective measures have inadvertently affected the routine follow up, assessment, and prescription fill-ups among patients with chronic illnesses. In this context, the study aimed to assess the impact of COVID-19 lockdown on medication availability and complications developed by leprosy patients.

Aims & Objectives:

- To study the availability of the MDT among the patients and the challenges faced by people affected with leprosy in accessing health services.

- To study if the lockdown has led to development of complications adding to their diseased condition.

Materials & Methods: A semi-structure questionnaire was administered during their routine patient follow-up/through phone calls for leprosy patients due for follow-up at two referral centres in Madhya Pradesh, India. The data was collected on the availability of medicines, whether they were supplied with all the necessary medications and problems they faced in obtaining their medication and if any new disease complications were developed.

Results and Discussion: Overall 104 people affected by leprosy participated in the survey. 15 (14.4%) participants reported having no MDT left, 24 (23.1%) for up to a week and more than half (62.5%) had enough medication for 1-2 weeks. Over a half of patients reported facing challenges in getting their medication supplies during the lockdown (n=55, 52.9%) and lack of transport as major problem. Complications, such as reactions and ulcer, were reported by 30.8% of patients during the lockdown.

Conclusion: The study observed that over half of the patients reported having problems to get their medicine during the lockdown. Therefore, in view of the potential pandemics, the government should take measures to enhance the delivery of drugs among the patients.

3. LEPROSY AND COVID -19 CO-INFECTION – EXPERIENCE IN A REFERRAL CENTRE IN MUMBAI, INDIA

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Introduction: Covid -19: The coronavirus disease 2019 (Covid-19) caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), a betacoronavirus (betaCoV)—emerged for first time as an outbreak of Pneumonia in Wuhan, China which spread globally. India reported over 11.6 million confirmed cases of coronavirus (Covid-19) as of March 22, 2021.

Leprosy: There is a need for studying association of leprosy and Covid-19 in terms of clinical management in view of new epidemic of Covid-19 outbreak. There are no reported cases of Leprosy and Covid-19 coinfection in India during the pandemic period 2020-2021.

In very limited experience reported a study published from Brazil so far on patients co-infected with Covid-19 wherein 4 lepromatous cases infected with Covid - 19, three of four had other co morbidity, including hypertension, diabetes and smoking. All co infected patients died.

Aims and Objective: We report seven cases of leprosy diagnosed with SARs CoV-2 coinfection as seen in our Referral centre and satellite clinics in Mumbai.

Of the seven cases 1 was PB, 6 were MB,4 were on MDT and 3 were during follow up. Three were in type 2 reactions.

Findings: Clinical features of Leprosy patients presenting with Covid-19 symptoms

Case no	Age/ Sex& Profession	Leprosy type	Smear BI	Type of Treatment and date of onset	Treatment & type of Reaction	Comorbidity	RT-PCR positivity for SARs CoV-2	Status of Covid after Rx
1	60/M Doctor	BT	0	MBMDT Dec 19	No RR	Diabetes Mellites	21st May 2020	-ve
2	52/F Housewife	Pure Neural	0	MBMDT Oct 19	No RR	Asthma and Hypertension	19th June 2020	-ve
3	35/M Business	BL with neuritis	3+	MBMDT Feb 20	Prednisolone + thalidomide (T2R)	Tuberculosis	1st August 2020	-ve
4	35/F Housemaid	BT	0	PBMDT Apr 18	No RR	Nil	5th October 2020	-ve
5	41/M Business	BL	5+	MBMDT Feb 20	Clofazimine (300mg - TDS) + Prednisolone (T2R)	Diabetes Mellites	Dec 2020	-ve
6	60/M Security personal	BT	0	MRMC July 19	No RR	Hypertension	13th March 2021	-ve
7	22/F student	BL	6+	MBMDT Aug 14	Clofazimine (300mg - TDS) + Prednisolone (T2R)	Nil	20th September 2020	-ve

Conclusions: In first ever cases of coinfection of Leprosy and Covid-19 and in continuing series of observations we found two patients were in higher risk group due to existing co morbidities, while two were being treated with Prednisolone and had co morbidities. One was on Thalidomide. MDT was continued. In remaining two cases one had comorbidity and the other was a treated case of leprosy under follow up. All seven cases recovered fully uneventful and have not reported any further clinical events.

4. BARRIERS AND FACILITATORS OF LEPROSY RELATED HEALTH SEEKING BEHAVIOUR IN TRIBAL AREAS OF KERALA: A QUALITATIVE STUDY

Saritha Susan Vargese, Nisha Kurian, Elsheba Mathew
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Introduction: India, has reported a decreasing number of new cases in the past 2 years. Understanding factors related to leprosy identification and management in tribal population is important in planning elimination of the disease in this vulnerable group.

Objective: To identify the factors (barriers and facilitators) associated with leprosy related health seeking behaviour which facilitates early identification and management in two tribal areas in Kerala

Methodology: A qualitative, in-depth interview study design, employing semi-structured topic guides, was used to explore the study aim. In depth interviews were conducted among 10 participants representing different stakeholders and residents from the community. The interviews lasted for approximately 30-40 minutes. Thematic analysis of the qualitative data was undertaken.

Results: Community concerns, cognizance, finance and emotional background are the themes identified. Lack of knowledge, difficulty in transportation, financial problems, less motivation and poor facilities at the health centre were identified as factors related to poor health seeking behaviour. However, very few people are practicing traditional medicines which is identified as a positive change. All the participants strongly admitted that there is no stigma associated with leprosy within the colony and if at all anyone falls sick, family will support in all possible ways for early cure. But they are aware that there may be associated stigma outside.

Discussion: Lack of knowledge was reported as the factor for poor health seeking behaviour. A study by Khanna et al suggested the need for better knowledge for improved treatment outcomes. Although stigma is deeply rooted in the Indian society, it was not reported to be prevailing in the selected tribal colonies.

Conclusion: Factors for facilitating better health seeking behaviour were identified. Participants acknowledged that deeply rooted stigma associated with leprosy was not existing in the selected tribal colonies and hence and did not affect their leprosy related health seeking.

Funding: Indian Council of Medical Researchs

5. A CLINICAL STUDY ON IMMUNE ZONES IN LEPROSY

Dr. T. Ravali Rao -PG, Dr. M Shahana -Assistant Professor, Dr. CH. Rama Mohan,
Dr. G. Narasimha Rao Netha.
Gandhi Medical College – KNRUHS

INTRODUCTION: Leprosy is a chronic granulomatous infection caused by mycobacterium leprae it mainly affects the cooler areas of the skin. Warm areas of the body like scalp, axilla, genitalia, groin, palms and soles etc are described as immune zones, but there is clinical, histological, bacteriological evidence of involvement of these areas, but less frequent. Therefore these areas are to be termed as relatively immune than as absolutely immune.

AIM: To study and learn about the involvement of the relatively immune zones, (palms and soles) in leprosy.

MATERIALS AND METHODS: Our study included 236 patients attending leprosy OPD in DVL department for a period of 2years. Complete clinical examination was done and confirmed by slit skin smear and HPE. The patients were then diagnosed classified using RIDLEY-JOPLING classification. All cutaneous lesions were noted including those involving the spared zones. A clinical correlation based on the spectrum of disease and involvement of the immune zones was done

RESULTS: Out of the 236 patients, 182 male and 54 female with age group ranging from 12-60yrs. It was observed that 122 patients were Borderline lepromatous and 82 were lepromatous leprosy patients,

among these in 33 patients (27%) of BL and 43 patients (52.4%) of LL palms and soles were involved. There was not much significant variation of involvement of spared zones in respect of age or sex of the patient

DISCUSSION: Palms and soles are considered to be included in the relatively spared areas due to their thick epidermis, high nerve bed temperature and large fibrofatty tissue acts as an insulation makes the invasion of bacilli less likely to these areas. In our study it was observed that palms and soles were more commonly involved in LL (43) than in BL(33).

CONCLUSION: It is not uncommon to find cutaneous lesions of leprosy on unusual sites of the body such as scalp, palms and soles, genitalia, groins, axilla, eyelids and perineum which should be termed as relatively spared or relatively immune rather than absolutely immune zones of leprosy.

TIME 12-1PM

1. EMPLOYABILITY OF LEPROSY AND OTHER DISABLED AFTER VOCATIONAL TRAININGS: A CASE STUDY OF INFUENCING FACTORS FROM TAMILNADU

Tinson Thomas, Principal, TLM Regional Vocational Training Centre, Vadathorasalur
Alfred Jagan, Placement Officer, TLM Regional Vocational Training Centre, Vadathorasalur
Vijay Patta, National Coordinator for Vocational Education Centre, TLMTI
Tina Mendis, Head – Sustainable Livelihood and Community Empowerment, TLMTI
Raju MS, Social Scientist, TLM Research Resource Centre, TLM Community Hospital, Nandnagari, New Delhi-110093

Introduction: Dignified livelihood for the leprosy affected and other disabled persons is an unfulfilled task despite of concentrated efforts from various realm of the society. A range of factors like Stigma, dogmas and taboos associated with the disease and the disability itself is adversely affecting the employability of the affected. While continued efforts are being made for several years to provide suitable educational and vocational trainings so as to promote their employability, it is felt very essential to assess its impact. The present study is taken up to fulfil above need.

Objectives: To assess the proportion of successfully employed among Vocational Trained in different trades from the categories of leprosy and other disabled • To identify the socio demographic, attitudinal and work cultural factors influencing employability of the trained

Methods: The study was carried out on those who are qualified from the TLM Regional Vocational Training Centre of Tamil Nadu. Based on the secondary data available with the Vocational training Centre, all the trained were contacted and the data's collected by interviewing over phone. Interview schedule is used for interviewing purpose.

Findings: The trends of employability have been derived over the years based on the no of employed, with reference to gender, trades chosen, level of disability, type of disability, working environment, attitudes of the trainee, attitudes of the family members, etc. Proportion of dropouts from the training ranged between 3 to 19 percent and of continuing employment ranged from 71-81 percent. It is found factors such as Counselling services (before, during and after training), disability specific supports, life skill training, placement support and inclusive employment sensitization among the employers influence the employability.

Conclusions: Means of providing necessary support to ensure 100% employability of the trained, need to be planned from the beginning of the trainings. Necessary policies for employer sensitizations by the government will facilitate an increased employability. There is immediate need for further research of reasons for dropouts from trainings.

2. INNOVATIONS TO THE RESCUE: CONNECTING THE DOTS

Dr.Abirami C, PG resident, KIMS, Bhubaneswar

Introduction: Leprosy is a multi-organ disease with the potential to cause nerve damage leading to impaired sensation and strength of the patient. Everyday activities such as cooking, handling of hot vessels, and sharp instruments can be hampered predisposing the patient to trauma and increased physical and mental dependency.

Aims & objectives: To suggest the implementation of user-friendly, cost-effective methods for Hansen's patients to improve their quality of life.

Methods (Innovation): Thermochromic paints are those which change their color based on the temperature they are exposed to. Such pigments are available for purchase and a coating of the paint can be applied over ceramic cookware and utensils. With this, a patient with sensory impairment of temperature can visually take a cue if the coated vessel will be hot to touch or of room temperature. Burns commonly seen in neuropathy patients can hence be avoided. A corrugated paper cup consists of three layers of paper, and the top layer has a relief structure. Corrugated paper cups have the lowest thermal conductivity compared to other cups, not only because of the air spaces in the walls of the cups but also because the hands are in contact only with the protruding parts of the screen. Thereby, the patient can consume a hot/warm drink without the apprehension of burning oneself unlike metal or ceramic cup. It is affordable and can be reused multiple number times. **Cut-resistant gloves**, a part of personal protective equipment (PPE) are designed to protect the wearer's hands from cuts while working with sharp tools. Varying combinations of fiberglass, stainless steel, and high-performance yarns are used to manufacture such gloves and can be used while handling sharp instruments such as knives, shards of glass during household work, preventing the risk of trauma. They are reusable and cost-effective, providing an additional advantage of better grip.

Conclusion: These effective, economic and worthwhile methods can be adapted by patients with neuropathy or sensory loss to improve their quality of life and avoid the psychological burden of dependency for everyday living.

3. PROFILE OF REFERRELS FOR TERTIARY CARE OF LEPROSY COMPLICATIONS FROM GOVT AND PRIVATE TREATMENT CENTRES

Prashant Jakhmola, Physiotherapist; Pankaj Gupta, Physiotherapist; Rajeev Joy Nathan, Medical Superintendent; M S Raju, Social scientist, TLMTI, Research Resource Centre, TLM community Hospital, Nandnagari, NewDelhi-110093

Introduction: Leprosy complications are common even after completion of Multi drug therapy of people affected by leprosy. It includes permanent deformities, recurrent ulcers, lepra reactions and neuritis, eye complications etc.

Objectives: To analyse the trends of cases referred from govt and private leprosy treatment centres for tertiary care of leprosy complications for the last 8 years (2014 to 2020).

Methodology: This is a retrospective study based on the data available with The Leprosy Mission Community Hospital Shahdara from 2014-2020.

Findings: There is increase in referral of leprosy complications in the hospital for tertiary care and its management. Those referred comprise of those for RCS, ulcer management, reactions and neuritis, ocular leprosy, footwear etc. Among the referrals 96% are from government center and 4% are from private treatment centres. Number of referrals since 2014 are as follows 2014-236, 2015-153, 2016-470, 2017-421, 2018-377, 2019-530, 2020-212.

Discussion: In government hospitals patients it is not easy to get admission for leprosy complications due to unavailability of beds or any other factors. Also, the acceptance of patients is one factor for referrals in Leprosy focused hospitals. So, based on this people with leprosy complications mostly comes to Leprosy focused hospitals and NGOs for tertiary care and management. This is an issue to be looked even after zero leprosy targets is achieved as leprosy complications and related disabilities remains till their life.

Conclusions: Due to establishment of good network system with government hospitals there is increase in referrals of in the Leprosy focused hospital.

4. A STUDY OF SOCIAL STIGMA AMONG THE LEPROSY PATIENTS ATTENDING LEPROSY CLINIC AT A TERTIARY HEALTH CARE CENTRE

Dr. BathulaAmulya(2nd year PG); Dr. V.Sirisha (Asst. Prof.); Dr. B. Raghu Kiran (Asst. Prof.); Dr. Sudha Vani (Assoc. Prof.); Dr. JVDS Prasad (Prof.); Dr. A. Venkatakrishna (Prof. & HOD), Osmania Medical College- Hyderabad

Introduction: Leprosy, an infectious disease caused by Mycobacterium leprae, is a highly stigmatized disease even in this post-elimination era. It directly affects patient's physical, psychological, social and economic well-being. Leprosy-related discrimination and stigma are the most powerful barriers to ending leprosy, especially given the disease is 100% curable when detected early.

Aims and objectives: To study the various aspects of social stigma faced by the leprosy patients attending leprosy clinic.

Methods: Cross-sectional study carried out from December 2020 to March 2021.

Results: Out of 146 leprosy patients, M:F ratio was 3.5:1. Most patients were in age group 20-40 years (51.4%). 70% of patients experienced discrimination in some form among members of family or community. Women suffered more rejection by family members (52.8%), neighborhood (78.2%), and work places (64.2%), compared to males who were affected maximum at workplace (38%) and least at family (8.1%). Illiterates were avoided by family members (28%) and co-workers (76%), whereas literates were not. All unemployed patients were neglected in community whereas only 22.6% of employed were neglected. Visible deformities due to leprosy was one of the major factor contributing for the stigma which is further exacerbated by an attitude to conceal the disease with fear of discrimination.

Conclusions: As the social stigma associated with leprosy is still a major concern, it's important to renew our focus on accelerating towards a leprosy-free world and ensuring the disease is no longer a source of shame and anxiety, stigma and prejudice, but is rather a challenge all of us can unite around to overcome. Therefore, community education component of Leprosy Control Program needs to be strengthened. That opportunity must be grasped, and a leprosy-free world secured for all.

5. STAGNANT VIEW OF HOSPITALIZATION NEEDS FOR LEPROSY COMPLICATIONS

Jessy Kurian[1] Rajeev Joy, Nathan[2] Pankaj Gupta[3] Author[4]Author[5]

Introduction: Leprosy related complications of hand feet and eye are very common, among those newly detected as well as declared RFT. Quantum of leprosy complications has not come down as per the reduction in new case rate. One of the Leprosy Mission hospitals located in Shahadara District of Delhi providing tertiary care for leprosy related services has taken up a study on trends of admissions with the following objective.

Objective: To assess the trends of hospitalized cases for Tertiary treatment of ulcers, Reconstructive surgery, eye surgeries due to leprosy related complications.

Methodology: Data was collected Retrospectively from the record of all patients who were admitted in the Hospital from Jan 2015 to Dec 2019 and cross tabulations were made as per complication and year.

Results/ Findings: This paper analyzed the complication wise need for hospitalization over the past five years from 2015 to 2019. As it was observed 33% of the patients were admitted for the treatment of ulcer and about 13% were admitted because of the ocular complications of leprosy while 40% of the patients were admitted for reconstructive surgery and 11% for complications related to reaction and neuritis during 2018.

Discussion: Trends show that leprosy affected patients reports to hospital with complications which requires admission like ulcer, reaction, neuritis and reconstructive surgeries and ocular complications. The complications are significantly visible among the cases relieved from treatment.

Conclusions: This may be concluded that the number of patients needing hospitalization has been almost stagnant over the last five years. Therefore, national planning should be formulated accordingly to address the complications which occur in leprosy and requires hospitalization.

TIME 4-5PM

1. COMORBIDITIES ASSOCIATED WITH NON- HEALING OF PLANTAR ULCERS IN LEPROSY PATIENTS

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LEPRA Society, Blue Peter Public Health and Research Centre, Hyderabad, India- 501301

Introduction: Non-healing plantar ulcers are one of the significant causes of disability in leprosy patients. Plantar ulcers often take months or years to heal, affecting the patient's quality of life. Presence of comorbid conditions in these patients can delay wound healing.

Aims & Objectives: The study aimed to evaluate the role of associated comorbid conditions as risk factors in ulcer healing.

Materials and Methods: A total of 66 leprosy patients with plantar ulcers registered at LEPRA Society-Blue Peter Public Health and Research Center (BPHRC), Hyderabad, India from June 2018 to June 2019 were studied. Comprehensive clinical assessment was done, including screening for comorbid conditions and treated as per the recommended guidelines.

Results&Discussion: About two-thirds of the participants were aged 50 and above, of which more than half were illiterates, and 93.5% were living below the poverty line. Majority of ulcers were seen on the forefoot; with the head of meta-tarsal bone 27 (41.6%) as the commonest site, followed by calcaneum 23 (38.3%) and great toe 10 (16.6%). Mean ulcer depth was 0.61 (0.57) cm, the area was 5.24 (6.73) cm2 and ulcer volume was 4.72 (14.33) cm3. Ulcer dimensions were significantly associated with low body mass index, hypertension and smoking.

Conclusion: Identifying the risk factors delaying wound healing and detailed assessment of ulcers are of profound importance to predict the outcome of plantar ulcers in leprosy patients. The study findings indicate the need for better policies by the leprosy control program for the comprehensive management of plantar ulcers.

2. STUDY ON EFFICACY OF AUTOLOGOUS PLATELET RICH FIBRIN MATRIX FOR NON-HEALING TROPHIC ULCERS IN PATIENTS WITH HANSEN'S DISEASE

Dr. AnushaKurre (2nd year postgraduate), Dr. Shankar (Assistant. Professor), Dr. Malini.P (Associate Professor), Dr.A. Venkata Krishna (Professor and HOD) Osmania Medical College

Introduction: Non-healing trophic ulcers in Hansen's disease patients is one of the major causes for disability. Autologous platelet rich fibrin matrix (PRFM) rich in growth factors is proven novel and effective in treating non healing trophic ulcers and is economical.

Aims and objectives: To evaluate the efficacy of autologous platelet rich fibrin matrix (PRFM) in treatment of chronic non-healing ulcers in Hansen's disease patients

Materials and methods: Prospective study of five patients with non-healing ulcers more than 3 months' duration. Autologous PRFM was applied to the clean ulcer followed by a secondary dressing every week for maximum of 5 sittings or till wound closure was achieved whichever occurred earlier. Healing of the wound was assessed by serial photographs and by comparing the area and volume at baseline and subsequent sitting till the closure was achieved

Results: Mean reduction in the area and volume of ulcer was 94.5% and 98.7 % respectively. All the ulcers responded and showed complete healing by 5 weeks. Average duration of healing of ulcers was 4.82 weeks. The procedure was safe, well tolerated without any side effects.

Discussion: Trophic ulcers represent a major cause of morbidity in patients of leprosy during medical therapy and after the completion of MDT. Conventional therapies such as dressings, surgical debridement, skin grafting does not provide satisfactory healing since they are not able to provide the growth factors necessary to modulate the healing process. PRFM therapy enriches the wound healing process by promoting the various necessary growth factors

Conclusion: Autologous PRFM for the treatment of chronic non-healing ulcer in Hansen's disease is a feasible, safe, simple, and affordable therapeutic option with no complications. By shortening the wound healing phase, the quality of life of these patients can be improved, and they can be rehabilitated at the earliest.

3. A PROSPECTIVE AND CLINICAL STUDY OF 'AUTOLOGOUS PLATELET RICH FIBRIN' – A THERAPEUTIC BIOLOGICAL OPTION IN THE TREATMENT OF TROPHIC ULCERS OF HANSEN'S ETIOLOGY

Dr. Ananthula Saketha PG, Dr. T. Satyasri (Assistant Professor),
Dr. CH. Rama Mohan (Associate Professor),
Dr. G. Narasimha Rao Netha (Professor and Head of Department)
Gandhi Medical College, KNRUHS.

INTRODUCTION: Non healing trophic ulcer is one of the major causes of disability in Hansen's disease affecting 10 % of cases. Various methods of treatment like POP cast ,topical EGF,PDGF have been in use for years. Autologous Leucocyte platelet rich fibrin matrix (L-PRFM) is a simple, safe, cost effective means of treatment.

AIMS: To evaluate the efficacy and safety of Autologous L-PRFM in the treatment of trophic ulcer of Hansen's etiology.

MATERIALS & METHODS: A prospective and experimental study conducted at department of DVL, Gandhi Hospital over a period of one year. Autologous PRFM was applied to the clean ulcer followed by secondary dressing every week. Healing was assessed by serial photographs.

RESULTS: Out of 15 cases, 7 cases had 90-100% improvement, 1 showed no improvement, 3 patients deferred, 4 patients were lost to follow up. 4 cases showed improvement in 1-4 sittings, 3 cases required 5-8 sittings.

LIMITATIONS: Modest sample size, no comparison group, follow up for 3 months only, PRF cannot be stored.

DISCUSSION: Trophic ulcers are treated with conventional methods recurs due to friable adhesion and inflammation. Platelets trigger chemotaxis, angiogenesis and cell proliferation, differentiation which plays a key role in tissue repair and regeneration. Though topical platelet derived growth factors are FDA approved for wound healing, they are costly. Hence, PRF is a safe and cost effective option.

CONCLUSION: PRF dressing is a simple, safe, cost effective biomaterial which shows great potential to achieve healing of trophic ulcer and can be considered in the armamentarium of ulcer of Hansen's etiology. Fast learning curve, can be done single handedly in small clinics with minimal equipment.

4.WHO LEPROSY DISABILITIES: BEFORE AND AFTER MULTI DRUG THERAPY

Dr. K. Krishna Priya, Dr. A. Venkata Krishna, Dr. P. Malini,
Dr. K. Shankar, Osmania General Hospital

Introduction: Leprosy is a chronic granulomatous disease caused by Mycobacterium leprae. The deformities caused by Leprosy make patients' lives miserable. Early diagnosis and treatment of leprosy cases before nerve damage occurs, the most reliable way to prevent leprosy disabilities.

Aims: To study the risk of disabilities and impact of multidrug therapy (MDT) in leprosy patients before and after treatment.

Methods: Prospective observational study involving newly diagnosed leprosy cases aged > 14 yrs. Slit Skin Smear examination (SSS) was performed to confirm the diagnosis. Wherever SSS was negative,

biopsy was performed. Before beginning MDT, all disabilities and deformities were recorded. Patients were asked a follow-up every two weeks to assess MDT's reactions, and every three months to assess disabilities and deformities. Before being released from MDT, patients were tested for BI and MI, and any disabilities or deformities were recorded.

Results: 50 were studied. 42% of the sample population had a disease period of fewer than 12 months, 50% had a disease duration of 12 to 36 months, and 8% had a disease duration of more than 36 months and disabilities were more with delay in diagnosis. 64% of those who took the SSS test were positive, while 36% were negative. Ninety percent of patients had nerve involvement at diagnosis. At the time of diagnosis, 18% had ENL, and 4% had RR. While on MDT, 20 % had ENL, and 6% had Reversal Reactions. Anesthesia (52%) was the most common type of disability, while lagophthalmos (2%) was the least common. Before beginning MDT, 26 percent had Grade1 disability, and 24 percent had Grade2 disability; after MDT, 30 percent had Grade2, 20 percent had Grade1, and 50 percent had Grade0 disability.

Discussion & Conclusions: The number of peripheral nerves involved, reactions, and the time delay to diagnose and treat were significant risk factors for disability. Even after MDT, disabilities persist. Early diagnosis and treatment are critical for reducing the risk of disabilities. New approaches to reduce disability burdens are needed, including systematic follow-up after treatment.

5. A STUDY OF CLINICAL PATTERN OF DEFORMITIES IN HANSEN'S DISEASE IN TERTIARY CARE CENTER

AUTHORS: Dr. Mandava Sneha Sree, Dr. SB. Kavitha,
Dr. C. Sudha Rani, Dr. G. Narasimha Rao Netha
AFFILIATIONS: Gandhi Medical College,
Kaloji Narayan Rao UnIversity Of Health Sciences.

INTRODUCTION: Leprosy is a chronic granulomatous disease caused by Mycobacterium leprae. The disease is feared for the deformities and disabilities it produces in the host. Deformity is defined as any loss or abnormality of psychological, physiological or anatomical structure or function. Different spectrum of the disease accounts for the different types of deformities. Presence of physical deformities in patients with leprosy reflects the rate of disease transmission in the community, delay in detection of cases and inadequacy or treatment failure.

AIM: To study the clinical pattern of Deformities in Hansen's disease in tertiary care center

OBJECTIVES: To assess the various socio-demographic factors, clinical patterns/spectrum of deformities, proportion of deformities and treatment compliance in patients with Hansen's disease.

MATERIALS AND METHODS:
STUDY DESIGN: cross sectional study for duration of two years
SAMPLE SIZE: 50 cases

SOURCE OF DATA: All patients with leprosy presenting to the OPD, Department of DVL in Gandhi Hospital, Secunderabad and referral cases from all other departments.

RESULTS AND DISCUSSION:50 patients with leprosy were studied, out of which,37(74%)were males and 13(26%) were females.7(14%)belong to pediatric age group.33(66%)belonged to low,15(30%)belong to

middle and 2(4%) belong to high socioeconomic status. It was found that majority of the patients were in the age group of 20 to 50 years. Based on spectrum 4(8%) belong to TT, 20 (40%)BT, 1 (2%)BB,7(14%) BL,12(24%) LL and 6 (12%) PNL. 3(6%)presented with type 1 reaction and 6(12%) presented with type 2 reaction.25(50%) had trophic ulcers,20(40%) had claw hand,6(12%) had auto amputation of digits,5(10%)had lagophthalmos and 2(4%)foot drop. 20(40%)were newly diagnosed cases,10(20%)were on active treatment and 20(40%)were RFT

CONCLUSION: Deformities range from mild degree of sensory loss to motor deficits such as complete claw hand and resorption of fingers, Even in post elimination era, a significant number of leprosy patients have visible deformities, hence early detection of the disease, patient education, counseling and management is essential for disability limitation and rehabilitation is the mainstay of treatment in deformity prevention and to improve quality of life of leprotic patients. This study reflects the need for further efforts to curb this infectious disease and increase education among masses.

6. LEPROSY EN PLAQUE-AN UNUSUAL PRESENTATION ON THE FOOT

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INTRODUCTION: Leprosy is an infectious disease whose clinical manifestations are highly influenced by the immune response of the subject and is a model disease in clinical medicine for understanding the human host defenses against intracellular pathogens.

CASE REPORT AND DISCUSSION: A 21year old male patient came to our OPD with pain in the left foot since 1 year and solid raised lesions over left foot since 5 months. The pain was radiating to the knee, pricking type associated with numbness aggravated on activity and relieved on rest. There was partial improvement after consulting a local physician and was treated on the lines of tinea corporis. Cutaneous examination revealed multiple, closely studded, faintly erythematous papules forming a plaque with hypo pigmented margin and central clearing distributed over the dorsum of left foot measuring about 4 X 2 cms. Few papules were showing white material at their summit. There were areas of hyperpigmentation and xerosis over the plaque. Cutaneous nerve was palpable over vicinity of the lesion. Left lateral popliteal nerve was thickened and tender on palpation. Sensory examination revealed diminished sensations to temperature, pain and crude touch. Motor, autonomic and cranial nerve examination was normal. Hair, nail and mucosa was normal. A differential diagnosis of BT Hansen's, lupus vulgaris, majocchi granuloma, papular/perforating granuloma anulare, papular sarcoidosis, actinomycosis was considered. Slit skin smear for AFB was negative. On histopathological examination, superficial and deep dermis showed moderate perivascular and perieccrine chronic granulomatous infiltrate composed of epithelioid histiocytes surrounded by lymphocytes s/o BT Tuberculoid leprosy. Patient was started on U-MDT and the lesions showed significant improvement on follow up after 2 months.

CONCLUSION: Our case highlights the unusual presentation of leprosy. Complete and diligent workup should be done in cases with atypical presentation to detect leprosy in endemic country like India.

E - POSTERS

E - POSTERS

1. AUTO-REACTIVE SALIVARY AND SKIN PROTEINS: PREDICTIVE BIOMARKERS FOR PATHOGENESIS OF REACTIONS IN LEPROSY ORAL

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Introduction: Reactions are immunological complications that occur either before, during, or after treatment and affect 30–50% of patients with leprosy. Infection with M. leprae may induce considerable changes in the humoral immune system often associated with autoimmune syndrome. Leprosy is frequently associated with a range of auto-antibodies, such as rheumatoid factor, anti-neutrophil cytoplasmic antibodies, antinuclear antibodies, anti-phospholipids, anti-mitochondrial, anti actin and anti-myosin and anti-endothelial cell.

Aim & Objectives: Present study was carried out to identify cross reactive proteins in clinical samples such as saliva and slit skin scrapings (SSS) of leprosy patients which could be further investigated for prediction of certain pathological conditions in leprosy.

Material and Methods: A total of 10 leprosy patients and 5 healthy volunteer were recruited in this study. The respective samples were further processed for protein precipitation. Isoelectric focusing (IEF) and two-dimensional PAGE was performed. The focused proteins were further subjected to western blotting using purified IgG from MLSA- hyper immunized rabbit sera, in order to check cross reactivity. The spots of interest were further analysed by employing MALDI-TOF. The peptide mass fingerprints were searched by using Mascot Wizard program (Matrix Science, Ltd., London, UK; http://www.matrixscience.com).

Results: We did not find any cross reactivity in healthy controls. Total five cross reactive spots of salivary proteins were identified as S100-A9, 35.3 KDa and 41.5 KDa proteins, Serpin peptidase inhibitor, clade A, Cystatin SA-III. Similarly, four spots of SSS were identified as a 41.4 KDa protein, Alpha-1 antitrypsin, vimentin and keratin 1.

Discussion: Some of these identified proteins have been reported to be associated with different clinical forms of leprosy and some may involve in induction of inflammatory episodes of reactions. This data provides strong evidence of molecular mimicry between host and pathogen in leprosy.

Conclusion: Extensive studies with these cross reactive proteins may provide early diagnostic biomarkers for reactions in leprosy.

2. LIFE WITH HANSEN'S DISEASE: AN INTROSPECTIVE STUDY INTO THE QUALITY OF LIFE ORAL

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Introduction: India hosts a major sixty-six percentage of total leprosy cases in the world. The patients approaching the health care facilities are often treated with multidrug therapy kits and most importantly counselling for the mental anguish they undergo due to the stigma from the society and anxiousness due to the disease itself.

Aims & objectives: To identify and quantify the quality of life and mental health status of patients attending a tertiary care center and diagnosed with Hansen's disease.

Materials and method: Patients with Hansen's disease visiting dermatology outpatient department are the subjects. Inclusion criteria included a newly diagnosed case of leprosy or a patient under treatment. Patients with known psychiatric comorbidity or on the medication for the same, with the co-existence of other dermatological diseases were excluded from the study. Forty consenting patients were given a validated Dermatology Life Quality Index (DLQI) and self-reporting questionnaire (SRQ 20) in the language they are comfortable in and asked to fill.

Results: A DLQI score higher than 10 indicates that the patient's life is being severely affected by their skin disease. If SRQ 20 scores of Men is >8 and Women >10 they need psychiatric evaluation.

The interim analysis shows that there is a significant impact on the quality of life and psychological health of patients with Hansen's disease.

Discussion: It may be helpful to evaluate the psychological profile of the patient seeking treatment for leprosy. This study emphasizes the need for reassurance and patient counselling of the patient by the physician in addition to the medical aid.

Conclusion: The patient with significant underlying psychiatric morbidity will benefit from counselling and psychiatric intervention.

3. MYCOBACTERIUM LEPRAE GENOTYPES AND DRUG RESISTANCE MUTATIONS IN JABALPUR DISTRICT OF MADHYA PRADESH

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Introduction: Leprosy, caused by *Mycobacterium leprae* and newly identified *Mycobacterium lepromatosis*, is an ancient disease majorly endemic to Asia and South America. India shares about 60% of the cases reported around the world. For a slow progressing disease, leprosy has stubbornly stayed around despite multidrug therapy (MDT) program active since last 30 years. *M. leprae*strains have been classified into four SNP types (1–4) and 16 SNP subtypes (1A–4P). These genotypes are associated with various geographical locations.

Aims and objectives: 70% of the genotypes studied throughout India have been reported as 1D genotype making it as the most prevalent genotype in the country. A similar information about the strains prevalent in central India is however not available currently.

Materials and Methods: Here we report our preliminary study targeting the discovery of genotypes and drug resistance prevalent in the area of Jabalpur. For this study, skin biopsy samples (n=90) from NSCB medical college, Jabalpur, were collected and taken forward for DNA extraction. PCRs targeting the SNP specific for 1D genotype and the drug resistance determining region were carried out and followed by Sanger sequencing.

Results and Discussion: Upon data analysis, we found n=55 samples to belong to SNP-genotype 1D while only 3 samples were non-1D genotypes. Drug resistance against the Rifampicin and Ofloxacin was checked by targeting *rpoB (n=56 samples),* and *gyrA (n=34 samples),* respectively. We found no mutations

associated with drug resistance in any of these genes, which is very re-assuring of the continued success of MDT. These results are in concordance with the earlier studies reported from other parts of India.

Conclusion: Like in others parts of India, the SNP-the 1D is most prevalent in Jabalpur and adjoining areas, where tribals have a significant representation in total population. Though currently there are no drug resistance associated mutations detected, a continued surveillance will be useful to monitor the trends.

4. PUZZLING ASYMPTOMATIC SKIN COLORED PAPULES OVER FACE: A DIAGNOSTIC CONUNDRUM

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Introduction: Multiple facial asymptomatic papules sometimes pose a diagnostic challenge as the morphology might be misguiding with an unexpected pathology evolving underneath.

Histoid leprosy is a rare form of mutibacillary leprosy having distinct clinical and histopathological features, with Indian data showing incidences in the range of 2.79-3.60%. Denovo Histoid leprosy represents a rarer subtype of histoid leprosy wherein no cause can be ascertained accounting for 12.5% of all histoid leprosy cases.

We report a curious case of a young female who presented with sole facial involvement in the form of multiple skin colored papules which turned out to be denovo histoid leprosy much to our surprise.

Case report: A 23-year-old female presented with sudden onset multiple monomorphic skin-colored, non-tender, discrete papules over the face since 3 months, having been previously treated as acne vulgaris treated with oral isotretinoin without any improvement. Clinical differential diagnoses considered were lupus miliaris disseminatus faciei(LMDF), papular sarcoidosis, trichoepithelioma and post kala azar leishmaniasis.A therapeutic trial with doxycycline considering a clinical diagnosis of LMDF was initiated due to patient's refusal for invasive biopsy. On subsequent follow-up, the number of lesions increased with lesions appearing over bilateral ears raising suspicion of the possibility of Hansens's disease. Slit skin smear and histopathology analysis diagnosed the case to be histoid leprosy. Considering no history of dapsone monotherapy and a lack of contact history, a final diagnosis of denovo histoid leprosy was made and the patient was started on multidrug therapy of rifampicin, clofazimine, and Dapsone for a duration of at least 2 years

Conclusion: A differential diagnosis of histoid leprosy should be considered in such a presentation especially in countries like India where leprosy is still a public health problem despite achieving elimination in 2005. Denovo Histoid Hansen's presenting with sole facial involvement is a new morphological presentation that hasn't been described in existing literature.

5. CRUST MODIFIED ACID FAST STAINING AS AN ALTERNATIVE METHOD FOR CONFIRMING TRANSEPIDERMAL ELIMINATION OF *MYCOBATERIUM LEPRAE* IN A LEPROMATOUS LEPROSY PATIENT.

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Introduction: Trans epidermal elimination in lepromatous leprosy is a rare phenomenon with few reported cases in literature. This event has clinical significance as an evidence of cutaneous spread of disease. However, establishment of diagnosis as trans epidermal elimination need demonstration of lepra bacilli in epidermis by histopathological examination with special staining. we are reporting a case of lepromatous leprosy with transepidermal elimination (which was confirmed by histopathological examination findings showing lepra bacilli in epidermis) shown modified acid fast staining positivity of crust collected from erosions present over extremities. Hence we conclude that even modified acid fast staining of crust (from erosions) can be effective noninvasive screening test for confirming transepidermal elimination, particularly in resource poor settings.

Case report: We are reporting a case of 18-year male presented with 6 months' history of appearance of asymptomatic vesicles on bilateral lower limbs, which were turning into erosions, crusting and were healing with pigmentation. On examination there was 50-100% loss of sensation on bilateral extremities with peripheral nerve thickening. Slit skin smear was showing BI +4, MI 30% and histopathology examination showing features of lepromatous leprosy with few bacilli on intact epidermis.

Discussion: Presence of bacilli on epidermis suggestive of transepidermal elimination which is a rare event, although few cases has been reported as case reports all have been diagnosed with the help of histopathology with special staining for lepra bacilli. Here we are reporting a case of transepidermal elimination (histopathologically confirmed) having modified acid fast staining positivity of crust which further confirms this event of transepidermal elimination.

Conclusion: we conclude that crust from lesions and remnant of vesicle can be an easy cost effective noninvasive Out Patient Department procedure to screen transepidermal elimination in lepromatous leprosy, if clinically suspected.

6. HOSPITALIZATION NEEDS FOR PLANTAR AND PALMAR ULCER COMPLICATIONS AND GENDER VARIATIONS

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Introduction: Ulcer management is one of the most serious issues in Leprosy care. Palmar and plantar ulcers of various complications occur due to their living culture and occupations. Though continued efforts are being made for improvement of self-care practices, complicated ulcer keeps on occurring which need hospitalization services. With an objective to see the trends of ulcer cases required hospitalization a retrospective study of admissions for the last five years has been carried out.

Objectives: To study the trends and profile of simple and complicated ulcer cases treated and hospitalized over the past 5 years in TLM tertiary care hospital in New Delhi. Methodology: This is a retrospective study, carried out at TLM Community hospital, Shahdara, New Delhi where necessary services for ulcer care and hospitalization are available. Analysis done using the secondary data available with TLM from the hospital records.

Findings: Data shows that, there is steady raise of the number of ulcer patients both in IPD and OPD till 2017 and a slight reduction in 2018 and started raising from 2019. There is a significant raise in the number of male child ulcers reported and admitted over the past five years. Also found, over the past 5 years' ulcer problem which needed repeated hospitalizations resulted in loss of jobs permanently and wages during admission period.

Discussion: Study reveals rate of ulcers not reduced at par with new case rate, ulcer problem remains still a major complication which needs to be addressed with more emphasis in addition to MDT treatment. As the number of admissions of ulcer related problems are increasing programs to supplement PHC services are of immediate need to address the issue.

Conclusions: This paper concludes unless the no of complications requiring repeated/hospitalization has been drastically brought down, ulcers will continue as a visible identity of leprosy, contributing for social stigma even after achieving zero leprosy.

7. OCULAR COMPLICATIONS AMONG LEPROSY AFFECTED : TRENDS OF CASES REPORTED TO A TERTIARY CARE HOSPITAL OVER THE PERIOD OF FIVE YEARS.

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Introduction: Leprosy still a challenge in country like India. Around 58% of the total cases globally are reported from India. Many patients report to tertiary care leprosy Hospital for the treatment and management of various impairments even after the completion of the anti-leprosy treatment. Many patients report to hospital with problems related to eyes viz lagophthalmos needing ectropion or entropion corrections (TMT or other) which needs hospitalization and also other like RED eye (uveitis, scleritis, corneal ulcer) etc.

Aim and Objective: In order see the trends of cases reported to tertiary care Hospitals in urban areas with complications related to eyes to leprosy affected.

Materials and Methods: This study was carried out in TLM Community Hospital Nandnagari Delhi. Data for the study was collected from the hospital records for the period of last five years from 2014-2018. **Results**: Data shows among the overall eye complications 15% of lagophthalmos, 7% had to be treated by surgical interventions, whiles 77% of the complications are of RED eye (uveitis, scleritis, corneal ulcer) as a result of the steroid therapy to leprosy affected during reactions.

Discussion: Eye related complications makes up the significant number of the cases which reports to hospital. Therefore, eye related problems due to leprosy cannot be ignored, be given proper attention and focus when a patient report to the Hospital. NLEP need to take necessary steps to address the ocular care of leprosy affected also along with treatment management.

Conclusion: It is recommended that every person affected by leprosy should undergo eye examination also on routine basis for the prevention, management and treatment for the eye related complications due to leprosy.

8. STITCH ANALYSIS OF THALIDOMIDE AND ITS ANALOGUES FOR PREDICTING FUNCTIONAL PARTNERS OF HUMAN PROTIENS POSTER

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Introduction: Thalomid (Thalidomide) is an immunomodulatory agent which was previously banned due to its teratogenic effects. Thalidomide made a comeback in 1998 when it received approval for the treatment of erythema nodosum leprosum (ENL). Thalidomide has also proved valuable in managing diseases like Rheumatoid arthritis, Crohn's disease, AIDS and various cancers including Multiple Myeloma. Lenalidomide, Pomalidomide, Apremilast are the analogues of Thalidomide having fewer side effects, increased potency and a promising future. This study is a bioinformatic comparison of Thalidomide and its analogues with the predicted functional partners in the host and exploring future application in managing lepra reactions.

Methods: STITCH (search tool for interactions of chemicals) is a database which provides information on interactions between proteins and small molecules. STITCH integrates information about interactions from different sources on metabolic pathways, crystal structures, binding experiments and drug–target relationships in the context of associated binding proteins. STITCH is available at http://stitch.embl.de/. The STITCH database was used to understand the molecular and cellular interactions and functions (predicted functional partners) of Thalidomide and its analogues.

Results and Discussion: Thalidomide is a well-studied molecule whose immunomodulatory action is well documented. The STITCH analysis helped us to compare for predicted functional partners for all the analogs of the study. Thalidomide, Lenalidomide, Pomalidomide have a common interaction with CRBN which is involved in embryonic limb out growth expression and supports the molecular evidence for its teratogenicity. These drugs also interact with TNF and Interleukins- IL2, IL6, IL8, IL10, IL18 which are involved in inflammatory cascades. Growth factor VEGFA has a strong interaction with thalidomide; whereas CSF3 has with Pomalidomide; and CD40LG, CD274, CD8A, CD40, IRF4 with Lenalidomide. All three thalidomide analogues have strong anti-inflammatory, signal interfering and receptor binding affinities for human proteins. Even with known teratogenic side effects, their potential use in life threatening and debilitating diseases warrants their availability under strict regulations and guidance. Apremilast is the only analogue which has been predicted to interact with phosphodiesterase on cell membrane which could affect the signalling mechanism of the cells. A clinical study of Apremilast in leprosy reactions would be interesting as it has a single protein predicted as a functional partner. The clinical application of these specific predicted molecule partners need to be evaluated in patients with lepra reactions. The analogues of Thalidomide and the human protein functional partners predicted by this bioinformatics study can be practically tested in an in-vitro assay to measure the response of these molecules in a patient's cell culture. This will be the future direction to a personalized approach to medical care for individuals with lepra reactions.

9. ULTRASOUND (USG) OF NERVES AS AN ADDITIONAL TOOL IN THE DIAGNOSIS OF PURE NEURAL LEPROSY: A STUDY IN A USG REFERRAL CENTRE ORAL

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Introduction: Patients with Pure Neural Leprosy (PNL) present with signs and symptoms of peripheral neuropathy in the absence of visible skin lesions and with negative skin smear. Such patients are often subjected to investigations such as nerve FNAC and nerve biopsy, which are invasive and difficult to perform. Clinical palpation of nerves to identify nerve enlargement is highly subjective and a disappearing skill. Ultrasound of nerves is a useful tool to objectively detect nerve enlargement. The objective of this

study was to study patients suspected of PNL, who had a USG of nerves to assess its value as an additional diagnostic tool to diagnose PNL.

Patients and methods: During the period February 2019 to February 2021 patients suspected of PNL who were referred to the centre for USG of nerves were studied. The age, sex, presenting signs and symptoms, clinical enlargement of nerves was recorded. Nerve ultrasound was carried out in bilateral ulnar and median nerves in the upper limb and bilateral lateral popliteal and posterior tibial nerves in the lower limbs. USG findings of cross-sectional area (CSA), echotexture and blood flow on color Doppler were analysed with relation to the clinical findings.

Results: There were 51 patients suspected of PNL, 35 (68.7%) males and 16 (31.4%) females. The predominant presenting signs and symptoms were anesthesia in 21; nerve pain and nerve thickening in 13; and grade 2 disability in 10 (muscle weakness or paralysis in 5 and trophic ulcer in 5). Clinically, most of the patients (71%) had two or less nerves enlarged (40 out of 56). The most commonly affected nerves were Ulnar followed by Median, Lateral Popliteal and Posterior Tibial. Ultrasound examination of the nerves reveled objective nerve enlargement (increased CSA) in 29 of the 51 patients (56.9%) and helped in the confirmation of a diagnosis of PNL; was suggestive of leprosy but not conclusive in an additional 8 cases (15.7%); and could help the referring dermatologist/neurologist exclude a diagnosis of PNL in 14 patients (27.5%) where the USG was normal. Based on blood flow on Colour Doppler examination acute neuritis was detected in 7 patients and appropriate treatment initiated.

Conclusion: Ultrasound of nerves is a useful tool to objectively detect nerve enlargement in a patient suspected of PNL and can help to clinch a definitive diagnosis of PNL. It can also help in the early detection of neuritis in these cases.

10. LEPROSY IN THE ELDERLY: A RETROSPECTIVE STUDY OF NEWLY REGISTERED PATIENTS IN A REFERRAL CENTER IN HYDERABAD

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Introduction: Leprosy can affect all age groups including the elderly. The objective of this study was to evaluate the number and profile of newly registered leprosy patients in the elderly age group.

Patients and methods: The case-records of all leprosy patients registered between January 1st, 2015 and December 31st, 2020 were reviewed and details of patients between the ages of 50-60 and 60 and above werenoted. Age, sex, duration of disease, presenting signs and symptoms, clinical and histological classification and skin smear were analyzed. Where available treatment details and Ultra Sonography (USG) opinion was noted.

Results: In the 5-year period (2015-2020) a total of 626 leprosy patients were registered in the center. Among them 90 patients (14.4%) were in the 50 and above age group (45 in 50-60 age group; 45 in 60 and above age group). The predominant clinical classification in these patients was PNL in 29 and BT in 20. Three patients presented in Type 1 reaction. Skin biopsy was done in 44 patients; and the predominant histological diagnosis was indeterminate leprosy in 10 and BT leprosy in 5. USG of nerves was carried out in 65 patients; with 34 showing nerve changes consistent with leprosy and/or PNL; and additional 8 patients showing evidence of acute neuritis.

Discussion: Leprosy in the elderly is a challenge as there are chances for continued transmission of disease and long term progression and complications. Pure neural forms occurred quite frequently in

the elderly and poseda diagnostic challenge. Combined clinical, histology, ultrasonography and rarely nerve biopsy were found to be useful tools to diagnose and manage leprosy in these patients. Type 1 reactions occurredoccasionally and were treated promptly.

Conclusion: With increasing life expectancy in India it is expected that increasing number of elderly can develop leprosy. Age related decline in hepatic and renal function as well as per-existing co-morbidities could complicate the management of leprosy in the elderly.Elderly patients may require physical, psychological, social, vocational and financial rehabilitation.

11. A RARE CASE OF DE NOVO HISTOID LEPROSY IN A 20-YEAR-OLD FEMALE STUDENT

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Introduction: Histoid leprosy is a rare type of lepromatous leprosy with a prevalence of 2.79-3.6% among Indian patients, usually present in patients with lepromatous leprosy who have taken long term Dapsone monotherapy but rarely occurs de novo.

Case Report: A 20-year-old female patient, student by profession, presented with asymptomatic raised shiny skin coloured popular lesions on the dorsa of hands, ear lobes and trunk. Examination multiple, shiny, skin coloured dermal papules on normal appearing background. The ulnar, radial and post-auricular nerves were thickened but non-tender. The slit skin smear site revealed BI to be 4+. Histopathology revealed a dermal granuloma and enlarged spindle shaped histiocytes along with longer, solid, grouped acid fast bacilli, thus confirming the diagnosis of histoid leprosy

Conclusion: Patient was given Rifampicin 600 mg, Ofloxacin 400 mg, and Minocycline 200mg and was then started on MB-MDT with regular follow-up and the patient improved.

12. DRESS SYNDROME IN A CASE OF LEPROMATOUS LEPROSY

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Introduction: The most important development in the leprosy control in the last millennium has been the introduction of multi-drug therapy (MDT) in 1982, following the recommendation of the WHO study group. Pauci bacillary MDT schedule contains Dapsone and Rifampicin;multi bacillary MDT schedule, contains Dapsone, clofazimine and rifampicin. Although these regimens are very effective, seldom certain dreadful adverse effects have come up too. We describe the case of a 32-year-old man with lepromatous leprosy in whom DRESS syndrome developed 3 weeks after initiation of multi-bacillary MDT.

Case report: A 32-year-old male presented with chief complaints of scaling and erythema of skin all over the body since 20 days and high grade fever since 3-4 days.1 month prior to the current presentation,he was diagnosed as a case of LL Hansen's and was put on MB-MDT.During the current admission, the patient had pedal edema,palmoplantar keratoderma, conjunctivalcongestion, decreased urine output.Bilateral radial, ulnar, common peroneal nerves were thickened, nodularand non-tender.All the

routine investigations were within normal limits except for low hemoglobin(9gm%) and leukocytosis.Skin biopsy revealed superficial perivascular lymphocytic infiltrate. Based on cutaneous features and temporal association with MB MDT,he was diagnosed as a case of DRESS syndrome and Dapsone in MB-MDT was stopped.He was started on systemic corticosteroids and drug regimen containing clofazimine,minocycline and Ofloxacin.General as well as the cutaneous condition of the patient improved well.

Conclusion: DRESS syndrome is not a rare adverse drug reaction as previously believed. It could prove to be fatal unless taken care early. Hence, physicians and leprosy field workers should be familiar with this reaction pattern so that early recognition is possible.

13. NEUROFIBROMATOSIS MASQUERADING AS LEPROMATOUS LEPROSY

Dr. Moni Singh

Introduction: *Involvement of nerve and skin occurs in leprosy and neurofibromatosis, with the Schwann cell being the primary target for both. However, the etiology and pathophysiology of both these diseases is different, with leprosy being an infection with Mycobacterium leprae and neurofibromatosis being a Genodermatoses. We hereby report a case of neurofibromatosis mimicking lepromatous leprosy.*

Case report:*A 30-year-old female patient, resident of Uppluru, Kesarpalli, farm laborer by occupation presented with*multiple asymptomatic raised lesions on face and upper limbs since three years. She developed small, erythematous, soft swellings initially over the lateral aspect of left arm followed by forearm. Gradually, similar lesions appeared over right arm, forearm and face. There was no history of fever. There was no history of seizure, deafness visual complaints, or motor or sensory deficit. Family history for neurofibromatosis was absent but was present for leprosy.

On examination: Multiple skin colored nodules, papules and plaques of variable sizes ranging from 0.5×1 cm to 1×2 cm in size present over the face, both upper limbs and lower limbs associated with mild erythema. Fine touch, pain and temperature sensations were intact on the lesions. On palpation, the lesions are very soft in consistency. Button hole sign was positive. Crowe's sign was negative. Multiple firm, subcutaneous nodules not otherwise visible are also palpable in bilateral forearm. Nerve examination indicated bilateral thickening of ulnar nerves, radial cutaneous nerves without any tenderness.

Slit skin smear showed no acid-fast bacilli in any of the lesions. Histopathological examination of one of the nodules revealed multiple spindle shaped cells with elongated nuclei, forming whorls with marked capillary proliferation and absence of acid-fast bacilli in Wade–Fite stained sections suggestive of Neurofibromatosis. Nerve conduction studies were within normal limits.

Conclusion:Nodules are a hallmark of both neurofibromatosis and leprosy. Nerve thickening can also be seen in both Neurofibromatosis and leprosy therefore, Neurofibromatosis has been mistaken for Leprosy and vice a versa in the past. This can lead to delay in diagnosis and hence, delay in initiation of therapy. Since Leprosy can cause extensive nerve damage with severe disability, therefore it is very crucial to confirm the diagnosis of leprosy and start prompt management to prevent further disability and complications.We report this case for its diagnostic and therapeutic implications and also to explore possible relationship between two seemingly unrelated disorders.

14. NAIL CHANGES IN RECENT AND OLD CASES OF LEPROSY

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Introduction: Leprosy, a disease caused by Mycobacterium leprae, primarily affects the skin and nerves. Nail involvement, although indirect, is observed in several patients.

Aims and objectives: To determine the pattern of nail changes in Leprosy

Methods: The present study was a prospective observational study involving 63 patients. Both old and new cases of Hansens were recruited after informed consent. A detailed history was taken and complete cutaneous and neurological examination was done with special emphasis on nail changes. Patients were grouped as per Ridley-Jopling classification and further subdivided as per age, sex,duration and reaction status. Nail changes in these groups were summarized and compared.

Results: Overall prevalence of nail changes was 68.2% . The prevalence rates in individual groups were as follows : 50% in TT patients, 73.6% in BT patients, 83.3% in BL patients, 78.9% in LL patients. Longitudinal melanonychia and longitudinal ridges were the common finger nail changes with longitudinal melanonychia being more common among tuberculoid spectrum ,TT(50%), BT(33.3%)and longitudinal ridges among lepromatous pole, BL(38.8%), LL(42%). Beaus lines, brachyonychia were more common toe nail changes with beaus lines more common in BL(66.6%),LL(68.4%) and subungual hyperkeratosis among BT(33.3%).Beaus lines, pterygium, onycholysis were more frequent among ENL patients.

Conclusion: Nail changes in leprosy are attributed to multiple causes like neuropathic, traumatic, vascular, osseous, infections and drugs reflecting extensive systemic morbidity caused by Mycobacterium leprae.

15. OSTEOPOROSIS IN LEPROSY PATIENTS

Dr. Swanam Gangopadhyay, Dr. Santoshdev P. Rathod, Dr. Pooja Agarwal.
Smt. NHL Municipal Medical College, Ahmedabad, SCL General Hospital, Saraspur, Ahmedabad.

Introduction: Leprosy is a chronic granulomatous latent disease caused by mycobacterium leprae which primarily affects skin and nerves. In many patients who complete multi-drug therapy, the morbidity continues in the form of lepra reaction requiring repeated steroid therapy. This may seriously affect the bone health leading to osteoporosis. Nutritional deficiencies and immobility further increase the risk. Osteoporosis compromises bone strength and results in increased risk of fracture. The method of choice for its diagnosis is measurement of bone mineral density (BMD) by dual energy X-ray absorptiometry (DEXA) expressed by the bone mineral content (g/cm2), T-score and Z-score measured in the lumber vertebrae, diaphysis of the radius and femur neck. In spite of having so many predilections, osteoporosis in leprosy patients has not been well explored.

Description of Case: A 34-year-old male presented with complain of red raised lesions associated with fever for 4 days and complaint of joint pain since 5 months. He was a RFT case of multibacillary leprosy and had taken MDT for 24 months. He was also treated with oral corticosteroids for multiple episodes of type 2 reaction in past. Examination revealed multiple, red, raised, papules and plaques over B/L upper limb, B/L lower limb and trunk. Sensory, Motor and nerve examination were normal. The patient was started on daily oral corticosteroids, along with moxifloxacin, clarithromycin, minocycline and clofazimine. The patient also complained of generalized body ache so a DEXA scan was done which showed a T score of < -2.5 and the patient was diagnosed with osteoporosis and treated accordingly.

Conclusion: Osteoporosis is a cause of chronic pain in leprosy and it is not well evaluated in leprosy patients. So, we should always investigate for osteoporosis in patients of leprosy and treat the patient accordingly to avoid any serious consequences.

16. PRESCRIBING MDT (MULTI DRUG THERAPY) TO A NON-LEPROSY PATIENT: NOT SO UNCOMMON OCCURRENCE IN ENDEMIC COUNTRIES

Dr. Parul Gohil,Dr. Santoshdev P. Rathod,Dr. Pooja Agarwal.
Smt. NHL Municipal Medical College, Ahmedabad.
SCL General Hospital, Saraspur.

Introduction: The WHO (world health organization) case definition of Leprosy is Mycobacterium leprae infection in an individual who has not completed a course of treatment and has one or more of the following:

Hypo pigmented or reddish skin lesions with loss of sensations

Involvement of the peripheral nerves as demonstrated by their thickening and associated loss of sensation.

Skin smear positive for acid-fast bacilli.

Any patient fulfilling the above mentioned criteria may be diagnosed with leprosy. Because of this simple case definition, leprosy tends to get over diagnosed. We highlight one such case of a non-leprosy patient misdiagnosed to have leprosy.

Description of Case: A 32-year-old male presented with complains of loss of sensations from bilateral hands since 10 years. He was born with torticollis and developed clawing of left hand along with loss of sensations over bilateral upper limbs from the level of shoulders since 10 years and loss of sensations over bilateral lower limbs since 1.5 years. He was given MDT for a period of 6 months but there was not much improvement and thus he was referred to a neurologist and was advised MRI of spine, which showed compression of nerves. His slit skin smear test was negative for acid fast bacilli.

Conclusion: Simple field definition is meant for primary health workers. However, it is also used by physicians in tertiary health care. The presented case highlights the importance of slit skin smear and/or demonstration of acid fast bacilli by histopathology, which has to be included for making the diagnosis of leprosy. This will prevent misdiagnosis and over treatment.

17. SOCIO-ECONOMIC PROFILE & H EALTH CARE ASSOCIATED COSTS FOR THE PATIENTS WITH LEPROSY IN AN URBAN HEALTH CARE SETTING, HYDERABAD.

Affiliations: LEPRA Society, Blue Peter Public Health and Research Centre, Hyderabad, India- 501301.

Introduction: Healthcare seeking services for leprosy patients range from initial diagnosis and treatment of leprosy to the diagnosis and management of its short term and long-term sequelae: lepra reactions and foot ulcers. Therefore, the study envisaged covering new patients, and patients with reactions and ulcers and thereby estimate the annual costs incurred for them in seeking healthcare.

Aims & Objectives: To determine the socioeconomic status of leprosy patients, estimate the direct and indirect costs incurred by the leprosy affected patients in seeking health care.

Materials and Methods: Cross-sectional study on leprosy patients using a semi-structured questionnaire visiting an urban health care setting was done, where the treatment is free of cost. Data was collected on demographics, clinical history, household income and socioeconomic status, treatment-seeking behavior and their perception towards the services.

Results & Discussion: Among 100 patients, 38 percent belonged to the most productive age group (21-40).The mean monthly income of the households was Rs 13655. Majority of the patients visiting the facility where from urban households, indicating the major percent of middle (47%) & high-income groups (46%) (Modified B.G. Prasad scale). The total costs incurred by the patients per year for the treatment was Rs6000, mean direct costs were Rs 6425 and indirect costs were Rs 3973, which was less as the investigations and the medicines are offered free of costs. The annual total healthcare costs as percentage of the total annual income of the households was6.3%.

Conclusion: Though the findings support the reduced out of expenditure, it also shows that the treatment of leprosy is long term and is inevitable.

18. STAPHYLOCOCCUS AUREUS BIOFILM IN LEPROSY FOOT ULCERS

Name of the Authors with affiliations: Ebineshan Kumar* and Aparna Srikantam

Affiliations: LEPRA Society, Blue Peter Public Health and Research Centre, Hyderabad, India- 501301.

Introduction: Plantar ulceration is the most common and serious disability in people affected by leprosy. It is already established that secondary bacterial infection of plantar ulcer is responsible in delay or non-healing of the chronic wounds. However, there is limited data on biofilm formation among clinical isolates of bacteria in plantar ulcers in leprosy.

Aims & Objectives: The study was undertaken to screen for bacterial biofilm formation in leprosy foot ulcers.

Materials and Methods: Leprosy patients with plantar ulcers who are registered for leprosy care in LEPRA – Blue Peter Public Health and Research Center were enrolled. A total of 88 wound swabs were collected from 83 leprosy foot ulcer patients (single ulcers from seventy eight patients and two ulcers from five patients). Bacterial biofilm matrix analysed through confocal laser microscopy

Results: A total of 89 isolates were indentified among these isolates, S. aureus (n=38) was the predominant pathogen and 86.8% (33/38) were with a good biofilm-forming activity. Biofilm matrix analysed through confocal laser microscopy and thickness of the biofilm increased up to 24 hours of growth.

Discussion & Conclusion: Preliminary findings from the study indicate the profile of pathogenic bacteria that are implicated in the secondary infections of plantar ulcers. There is also a considerable antimicrobial resistance observed with biofilm producing organisms. Our initial observations on formation and progress of in-vitro biofilm indicated the potential use for the laboratory detection of biofilm. Further studies warrants for establishment of method/s on direct wound swabs for early detection of biofilm for better management of chronic ulcers in leprosy.

19. A CASE OF HANSEN'S DISEASE PRESENTING AS ULCERONECROTIC ERYTHEMA NODOSUM LEPROSUM - A RARE CASE REPORT

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Dr. A.N.M. Maalik Babu, Dr. S. Judith Joy, Dr. P. Kalyanakumar
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INTRODUCTION: Erythema nodosum leprosum is a type III hypersensitivity reaction, classically presents as tender, coppery, evanescent nodules along with constitutional features and visceral involvement. However, uncommon morphological variants erythema nodosum necroticans, erythema multiforme like ENL, Sweet's syndrome like ENL, Lucio phenomenon and reactive perforating type of ENL have also been described in the literature. The purpose of this report is to highlight an unusual presentation of lepromatous leprosy, presenting as ulceronecrotic erythema nodosum leprosum.

CASE REPORT: 55 years old male came with raised skin lesions, initially started over left arm then to involve both front and back of trunk, both arms, thighs and legs in 20 days. H/o fever and chills. On examination he was thin built, anemic, febrile. Multiple well defined erythematous plaques studded with pustules and subcutaneous nodules present symmetrically over front and back of trunk, bilateral extensors of arms, thighs and legs. Nodules over the legs ulcerated to form multiple ulcers, no peripheral nerve thickening, no glove & stocking anaesthesia. Thenar and hypothenar muscle wasting present. We did SSS and biopsy. Meanwhile he was treated with iv antibiotics. No new lesions occurred after, leaving erythematous to hyperpigmented patches with multiple subcutaneous nodules. SSS - 3+, Skin biopsy - thinned out epidermis and dermis - grenz zone with underneath diffuse acute on chronic inflammatory infiltrate composed of neutrophils, numerous macrophages having eosinophilic granular to foamy cytoplasm surrounding adnexal structures and extending into subcutaneous adipose tissue. Fite farraco stain is positive, numerous thin bacilli in single and clusters, predominantly intracellular within macrophages.

CONCLUSION: In the current scenario, lepra reactions by its varied and atypical presentations imposes a difficulty in diagnosis and delay in treatment. We should make ourselves acquainted with these variants as failure to diagnose and treat them adequately can increases the morbidity and mortality associated with leprosy.

20. THALIDOMIDE IN THE TREATMENT OF ERYTHEMA NODOSUM LEPROSUM (ENL) IN AN OUTPATIENT SETTING: A FIVE-YEAR RETROSPECTIVE ANALYSIS FROM A LEPROSY REFERRAL CENTRE IN INDIA

Brahmaiah Upputuri, Michael Sukumar Pallapati, Aparna Srikantam
Affiliations: LEPRA Society, Blue Peter Public Health and Research Centre, Hyderabad, India- 501301.

Introduction: Erythema nodosum leprosum (ENL), or type 2 lepra reaction, is a multi-system immune-mediated complication in patients with multibacillary leprosy, frequently associated with chronicity and recurrences. Management of ENL requires high doses of oral corticosteroids, which may not be universally effective and pose serious adverse effects. Thalidomide has proven to be a steroid-sparing agent and is useful in controlling the reactions. However, many centres do not employ it in outpatient settings due to adverse effects and teratogenicity risk.

Aims & Objectives: To study the feasibility of treating ENLs with Thalidomide and report the therapeutic outcome.

Materials and Methods: A five-year retrospective record-base analysis of ENL patients treated with thalidomide in the outpatient department of LEPRA society BPHRC, Hyderabad, was done (2010-15).Clinical characteristics were stratified by treatment compliance status (yes/no). Incidence rates and rate ratios for recovery stratified by bacillary index, type of ENL presentation and MDT treatment status were calculated.

Results and Discussion: Out of 102 ENL patients treated with thalidomide, 68 (66.7%) were compliant and improved. Among them, ENL recurrence was noted in 11(16.2%) patients. The commonest thalidomide side effect was pedal oedema (73.5%). Patients with bacillary index (BI) less than or equal to 4.0 had a 37% increase in the incidence of recovery. Patients with acute ENL were almost twice as likely to recover as those with chronic ENL. Also, the improvement was two and a half times greater among those who completed MDT as compared to those on MDT.

Conclusion: The study showed that thalidomide treatment for patients with ENL is possible in outpatient clinics and the results indicated that early institution of thalidomide induces faster remission and prevents ENL recurrence.

21. REACTIONS IN CHILDHOOD LEPROSY - A RETROSPECTIVE COHORT STUDY

Dr. Tharangini Mothukuri (Post Graduate), Dr. Raghupathi Reddy (Associateprofessor), Dr. C. Sudharani (Professor), Dr.G.N.R. Netha (Professor And HOD)

AFFILIATIONS: GANDHI MEDICAL COLLEGE & HOSPITAL, KNRUHS

INTRODUCTION: Leprosy is a chronic infectious disease that affects the skin and peripheral nerve trunks. Owing to its long incubation period, leprosy has been considered a disease of adults; nevertheless, in highly endemic regions, many children are exposed at early ages to high bacillary loads causing a large number of cases in childhood. It is very rare but not uncommon for children to present with reaction episodes at some point before, during, and/or after the end of MDT.

AIMS & OBJECTIVES: The objective of the present study is to describe the clinical and epidemiological aspects of leprosy reactions in children under 18 years diagnosed at the tertiary health care

MATERIALS & METHODS: This was a retrospective cohort, descriptive study conducted among patients under the age of 18 years comprising of 69 patients who were diagnosed with leprosy at the tertiary health care Gandhi hospital &Nizamabad government hospital in the department of DVL between the year 2016 to 2020

RESULTS & DISCUSSION: Of the 69 patients selected (majority of them presented with history of epistaxis, diffuse infiltration of skin, ear lobule infiltration and papulo nodular lesions), 19(27.53%) had leprosy reactions. Among these, 9(47.36%) had reactions at diagnosis, 5(26.31%) had reactions after MDT, Type I reactions occurred in 3(15.78%) cases, Type 2 in 16(84.21%) cases. Complications, such as disabilities, necrotizing erythema nodosum, occurred in 4(21.05%) patients.

The high frequency of ENL reactions indicate high proportion of multibacillary cases in children which indicates need for early detection, diagnosis and treatment of the disease &reactions thereby preventing complications and disabilities

Reactions after MDT highlight the need for continuity in healthcare of children with leprosy

CONCLUSION: Leprosy reactions can lead to permanent nerve damage, potentially resulting in disabilities and deformities. Severe nerve damage and deformities can result in discrimination at school and difficulties in the social life of children with leprosy. Studies on this topic are scarce, especially among paediatric groups, both during MDT and after the end of treatment.

22. SINGLE PLAQUE LEPROMATOUS LEPROSY PRESENTING AS GRANULOMA ANNULARE: A rare presentation

Dr. Keerthi vardhini(PG), Dr. Praveen kumar (assistant professor),
Dr. Sudharani (professor), Dr. Narasimha Rao netha (Prof and HOD)

AFFILIATION: GANDHI MEDICAL COLLEGE AND HOSPITAL, SECUNDRABAD.

INTRODUCTION

Leprosy is a chronic infectious disease caused by Mycobacterium leprae, primarily affecting the peripheral nerves and skin. The clinical presentation of leprosy is highly variable, depending on the immune status of the individual ranging from tuberculoid to lepromatous spectrum.

Usually tuberculoid and borderline leprosy can mimic granulomatous conditions like sarcoidosis, lupus vulgaris and granuloma annulare which is rarely reported in lepromatous leprosy.

Here we are reporting a unique presentation of lepromatous leprosy clinically mimicking granuloma annulare. and confirmed by histopathology.

CASE REPORT

A 75year old male presented with asymptomatic elevated skin lesion on the right elbow since two months. Cutaneous examination revealed single, well defined, annular plaque with shiny, erythematous to normal surface and beaded papules at the margin. Touch and temperature sensations over the plaque were normal. There was no thickening of the peripheral nerves. A differential diagnosis of granuloma annulare, lupus vulgaris and tuberculoid hansens were considered. Routine investigations, chest Xray was normal and mantoux test was negative. Skin biopsy was suggestive of LL. Based on histopathology findings and skin smear, a diagnosis of lepromatous leprosy was made. Patient was treated with Multibacillary Multidrug therapy for 12 months and the lesion healed with pigmentary changes.

DISCUSSION

The uncommon presentations in lepromatous leprosy reported were localized lepromatous disease presenting with single nodule or localized area of papules and nodules, verrucous plaques, cutis laxa, annular bullous lesions, cutaneous lymphoma, non-healing ulcer, infiltrated linear lesions, nerve abscess, lupus vulgaris , erythema multiforme like and Granuloma annulare like lesion.

Granuloma annulare like presentation is very rare with only two cases reported so far.

Here, we are reporting a rare case of lepromatous leprosy presenting as solitary plaque of granuloma annulare.

Awareness about uncommon presentations and appropriate timely investigations helps in avoiding delay in diagnosis and treatment especially in post elimination era of leprosy.

23. PAINLESS AMPUTATION OF DIGIT IN LEPROSY

Authors: Dr. Malay K. Chaudhari
Dr. Santoshdev P. Rathod, Professor
Dr. Pooja Agarwal, Assistant professor,
M.D. SKIN & V.D
Smt. SCL Hospital, Ahmedabad.

INTRODUCTION: Amputation is removal of the limb through a part of bone. Amputation may be due to injuries, peripheral vascular disease, infections like gas gangrene, tumors, nerve injuries,etc. Leprosy is a chronic granulomatous infectious disease caused by M. lepra. It mainly affects skin & peripheral nerves but also affects muscles, bones, eyes, testes & other internal organs.The abhorrent images often seen in the pictures and depictions about leprosy-affected individuals with eaten away fingersand toes.

CASE SUMMARY: A 40yr old male patient from Kheda came to dermatology OPD complaining of raw area over tip with swelling over right little finger for 10 days after unnoticed trauma. And also had multiple well-defined hypopigmented plaques of varying size present over forehead, back, buttocks, both legs since 15 yrs, along with chronic non-healing ulcers over both feet, on-examination single well-defined 2*1cm sized round shaped ulcer with necrotic slough, yellowish oozing of discharge, punched out edge with diffuse erythematous swelling of right little finger. And surgical amputation of right ring finger up to proximal IP joint before 1 yr. Complete movable claw hand deformity of left hand since 5yr. Biopsy conforms BORDERLINE TUBERCULOID LEPROSY.

DISCUSSION AND CONCLUSION : The incidence of leprosy is 0.67/10000(2019), incidence of deformity in leprosy is 2.65/million(2019). Although the incidence of neuropathic arthropathy and auto-amputation is lower than other causes but not to forgotten especially in high prevalence stats. The hypoesthesia from nerve involvement, compounded poor healing from vascular deficit and secondary infection from trophic ulcer leads to acral osteolysis and leads to amputation. Early diagnosis with routine nerve examination and prompt treatment with MDT and treatment & prevention of reactions can halt disability and handicap. As well as health education with economic and medical rehabilitation is important in holistic management of Hansen.

ACKNOWLEDGEMENTS

The organizing committee of the 31st biennial conference of IAL wishes to acknowledge the support of the following organizations and members in successful conduct of this conference.

First and foremost, we would like to thank the executive committee members of *Alumni Educational center*((AEC), Gandhi medical college, for their magnanimity of providing the hall free of cost for this conference, a generous gesture done not for the first time, for the cause of leprosy. We would like to make special mention of Dr K Lingaiah garu, Dr GR Linga murthy garu and Dr Pratap Reddy garu of AEC for their kindness.

We would like to mention with gratitude the support and warmth extended by each and every member of *Department of Dermatology, Gandhi medical college*, Hyderabad which is the key to the success of this conference. This will not be out of place to mention that this is the third leprosy conference/ workshop hosted in this institution over the last 7 years with the support of the dermatology department. Big thanks for being so encouraging and helpful.

We would like to thank the executive and members of *Telangana state IADVL* for rooting for this conference and extending support when needed.

We thank the professors and faculty of *Department of Dermatology, Osmania medical college,* Hyderabad for their assistance and participation.

Our special thanks to *BPHRC, LEPRA India, and Sivananda rehabilitation home*, Hyderabad for their scientific and technical support in conducting this conference.

We thank all the *Pharmaceutical companies,* who took part in this conference as sponsors. Although they were very few, their financial contribution was very important in hosting this conference.

Finally, we thank the *EC and CC members of IAL* for their advice and support in making this event a reality.

Dr. P. Narasimha Rao
Chairman, Organizing committee

FURTHER READING

1. Indian Journal of Leprosy - http://www.ijl.org.in/
2. International Textbook of Leprosy - https://ial-leprosy.org/adver/111824ther.html
3. Indian Association of Leprologists - https://internationaltextbookofleprosy.org/

ANNEXURE - I

HAND NOTES

WORKSHOP ON LEPROSY FOR POSTGRADUATES

APRIL 17th, 2021

10.00 AM - 1.00 PM

CO-ORGANISED BY

DEPT OF DERMATOLOGY, GANDHI HOSPITAL
LEPRA SOCIETY, SIVANANDA REHABILITATION HOME (SRH)
& NIREEKSHANA ACET

Topics:

Skin smears
Physiotherapy in Leprosy
Ultrasonography of peripheral nerves

Resource Persons:

Dr P Narasimha Rao
Dr Sujai Suneetha
Dr S Anantha Reddy
Dr Suman Jain
Dr Aparna Srikantam
Mr Kameswara Rao
Mr Purushottham
Mr Gopala Rao

1. SLIT SKIN COLLECTION AND SMEAR EXAMINATION

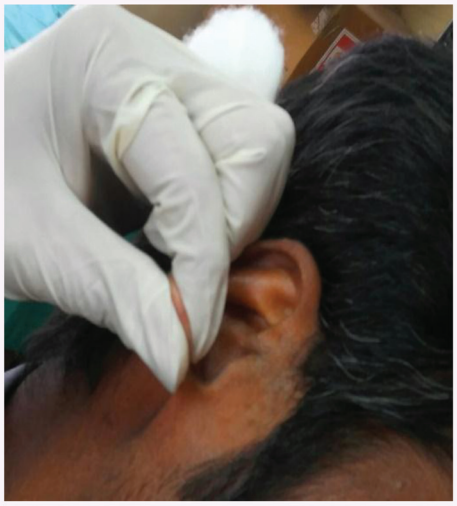
Introduction:

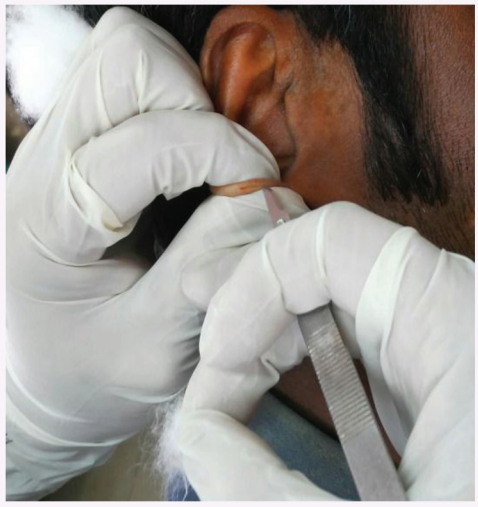
Bacteriological examination is an essential procedure for all patients in whom the diagnosis of leprosy is suggestive after a detailed clinical examination.

It assists in:

A. The diagnosis of Leprosy
B. The classification of Leprosy
C. Monitoring the response to treatment in smear positive patient; and
D. Excluding the diagnosis of Leprosy

A lesion is incised superficially without causing bleeding. Serous (Tissue) material from the incision is spread on the slide, air-dried, fixed by heat, and examined under a microscope after staining by a modified Ziehl - Neelsen cold method. The causative agent of leprosy is a rod (stick) shaped organism called a Mycobacterium leprae, it is an acid and alcohol fast bacilli.The bacillus measures about 3 – 5 micron length & 0.2 – 0.5 micron width and elongated forms and rounded ends, seen in single, pairs &globi.





Steps involved in Slit Skin Smear:

1.1 Sample Collection:

Clean each skin site just before taking the specimen. Rub vigorously with a ball of sterile cotton wool soaked in methylated spirit.

Hold the selected area hard between the index and thumb fingers of left hand to stop the flow of blood from the area and closely pinch for few seconds to remove the remaining blood in the pinched area.

Take a surgical scalpel with a detachable narrow blade (sterile), the pinch place should be 8 -10 mm. Take a B.P. handle, along (fixed) with scalpel blade. Make a slit (cut) around 5 mm length along the fold 2 mm deep. If blood appears, wipe dry with a sterile cotton wool take a sterile cotton wool, from placed in between middle and ring fingers of left hand and press harder to stop bleeding.

Turn the tip of the blade of the B.P. handle (knife) across the cut. Scrape for 2-3 times a bit of tissue from the sides and bottom of the slit. Collect the scraped material into an end of the slit and place the material on the knife taken into up from the slit.

1.2 Smear Preparation:

Collect the entire scraped colorless / pinkish tissue material, place it on the slide. With the flat of the blade spread the tissue material evenly in a circular motion over an area of 4 – 6 in diameter on one end, on the numbered side of the slide.

1.3 Preparation of Ziehl – Neelsen stains & Reagent:

According the specification or Molecular should weigh up Basic Fuchsin.

Example: The specifications is 89% (1/89=1.12)

a) 1% Carbol Fuchsin for 1 ltrs (1000ml)

1- Basic Fuchsin	11gms
2- 98% Alcohol	120 ml
3- Phenol Crystal (50gms)	60 ml
4- Distilled Water	820 ml

b) 5% Sulphuric Acid for 1 ltrs (1000ml)

1- Distilled Water	950ml
2- 98% Sulphuric Acid	50ml

Or

b/a) 3% Acid Alcohol for 1 ltrs (1000ml)

1- Distilled Water	500ml
2- Rectified Spirit	470ml
3- Sulphuric Acid / Hydrochloric Acid	30ml

c) Preparation of 0.1% Methylene Blue for 1 ltrs (1000ml)

1- Methylene Blue	01gm
2- Distilled Water	1000ml

Note:

The prepared stains should be filtered at least two times. Once in a reagent bottle, and again at the time of stain pour on the smear slide. The stains and reagents should test before going to utilize for quality control of one known Positive and Negative slide.

1.4 Procedure of Ziehl-Neelsen staining:

Ziehl-Neelsen staining cold method, place the 8 - 10 slides with fixed smears on the staining rods in a sink, according to serial. The rods should be perfectly horizontal in level.

A. Primary stain with 1% Carbol Fuchsine for 20 mts.
B. Decolonization with 2% Acid Alcohol for 5 mts.
C. Counter Stain with 0.1% Methylene Blue for 30 Sec.

1.5 Microscopic Examine of Smear Slides:

After air dry, the stained skin smear slides are to be examined under the Microscope. Add one drop of oil on the top edge of the smear at numbered side.

After adding a drop of immersion oil on slide, keep the smear slide in slide holder on mechanical stage of the microscope and focus under low power objective with help of course adjustment knob. Then turn the oil immersion objective focus with the

help of fine adjustment and examine the number of fields according to the requirement.

State the site from which the smear was taken, e.g. ear, forehead and patch etc. state whether or not AFB are seen. Specify whether they are seen in globi and indicate the degree of positivity.

1.6 Bacteriological Grading:

The Bacteriological (or Bacterial) Index indicates the density of leprosy bacilli in smears and includes both solid-staining and fragmented or granular bacilli. According to **Ridley's** logarithmic scale, it ranges from zero to 6+ and is based on the number of bacilli seen in an average microscopic field of the smear using an oil immersion objective.

No. of AFB/ No. of Oil immersion fields examined	**Total Oil immersion fields to be screened to give reading**	**Result**	**Grading**
No AFB /100 fields	100	Negative	Negative
1-10 /100 fields	100	Positive	1+
1-10/10 fields	100	Positive	2+
1-10/01 field	50	Positive	3+
10-100/01 field	25	Positive	4+
100-1000/01 field	25	Positive	5+
>1000/01 field	25	Positive	6+

The BI of the patient is calculated by adding up the index from each site examined and dividing the total by the number of sites examined. (E.g. RE- 5+ LE- 5+ P1 - 4+ P2 4+) Ex: Bacteriological 5 + 5 + 4 + 4 = 18/4 = 4.5+

Morphological Index (MI)

The Morphological Index is the percentage of presumably living (complete or full) bacilli in relation to the total number of bacilli in the smear. It is calculated after examining 200 pink-stained, free-standing (i.e. not in clumps) bacilli. This is first recorded separately for each smear. The percentages are then added up and divided by the number of smears to give the MI of the patient.

Ex: Number of Solid bacilli / 200

1.7 Disinfect & disposal of the infected materials:

Collect the soiled cotton wool and gauze swabs in a covered container and burn them later or soak it in 5% phenol and keep for more than 18 hrs. in a foot operated bin and treat according to Bio-waste management procedure of PCB shown below. Place the scalpel blade in a suitable container for autoclaving. It is most important to sterilize the scalpel blade before disposal.

References and further reading resources

1. **Training Manual for Medical Officers, 2019. National Leprosy eradication Programme, MOHFW, Govt. of India.**
2. **https://www.infontd.org/**
3. **https://ilepfederation.org/**
4. **Video links- https://youtu.be/UPuc3mLUjdY**

2. BASIC PHYSIOTHERAPY IN LEPROSY

Brief background on physical dysfunction and disability in leprosy:

Leprosy is one of the leading causes of physical disabilities which contribute to intense social stigma resulting in discrimination of patients and their families. With the advent of multidrug therapy (MDT) and its widespread implementation since early 1980s majority of the patients afflicted with leprosy are being released from treatment. A proportion of them have residual problems, mainly loss of skin sensation in the hands, feet or the eyes, with or without motor paralysis and attendant deformities. The affected parts are certain to develop further complications and secondary disability like ulcers, stiffness of joints and destruction of skeletal architecture, if they are not cared for. Inevitably these complications will worsen the disability, make correction of the deformities much more difficult or impossible. However, the occurrence of these secondary impairments can beprevented altogether by taking protective measures. Furthermore, even when they have occurred,

their late consequences can be prevented by detecting the conditions early and treating them promptly and properly, using appropriate surgical and non-surgical methods.

Table showing the major consequences of nerve involvement due to leprosy

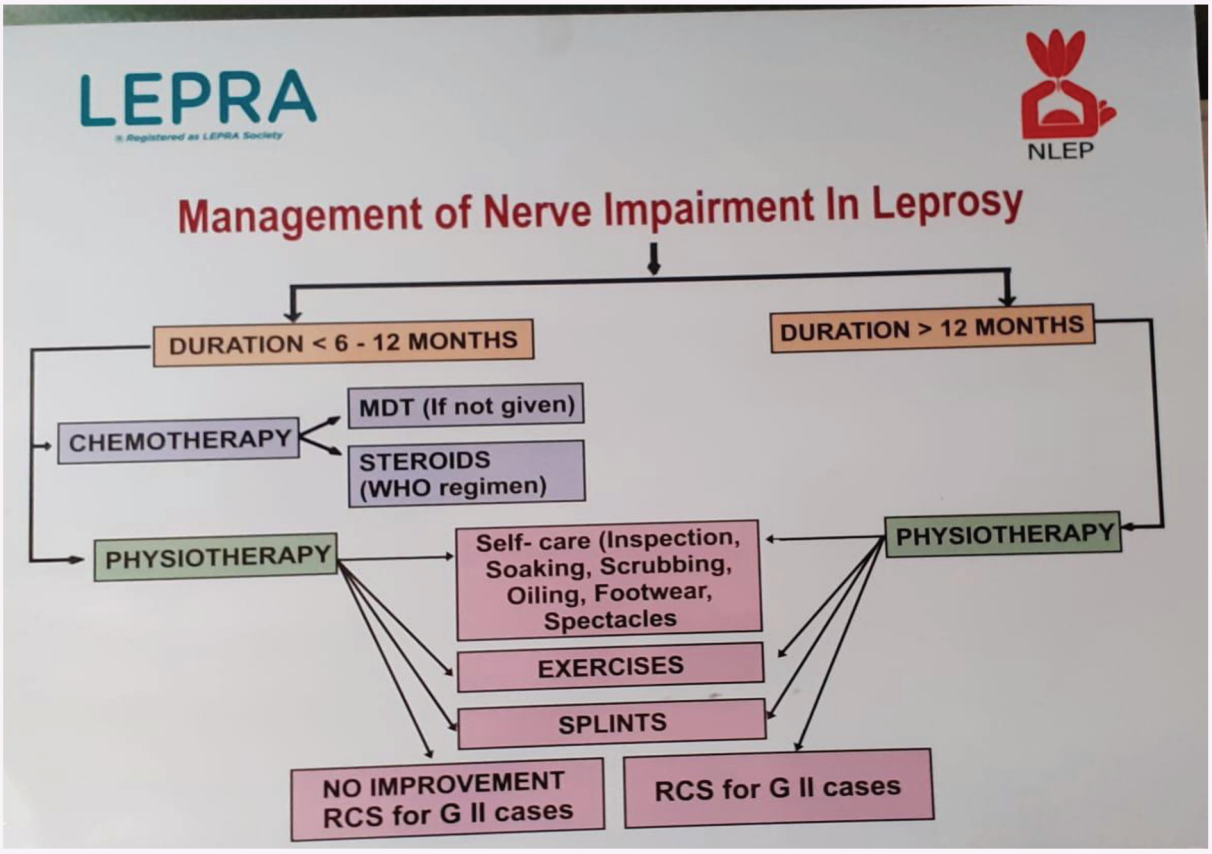
Name of the nerve	Type of the nerve	Location of the nerve for palpation	Major area of sensory and / or autonomous damage	Muscles involved	Chief deformity / disability
Trigeminal (5th Cranial)	Sensory	Behind the ear	Cornea	Nil	Corneal anaesthesia
Facial (7th Cranial	Motor	Under the jaw line	Nil	Orbicularis Oculi	Lagophthal mos
Ulnar (low & high)	Trunk / Mixed	Olecranon groove between medial & lateral epicondyles of humerus	Little finger and med. Half of the ring finger – Palmar & dorsal aspects of hand	**Intrinsics** - Abd./Flex./Opp. DigitiMinimi, all interrossei , medial two lumbricals, adductor pollicis and PlamarisBrevis **Extrinisics** – Flexor Carpi Ulnaris, Flexor DigitorumProfundus of medial two fingers	Clawing of little and ring fingers, latent clawing of middle and index including 'Z' thumb
Median (low & high)	Trunk / Mixed	Under the Palmaris Longus tendon at Carpal tunnel at wrist anteriorly	Lateral half of ring finger, middle, index and thumb in palm and excluding TIP jt. Over dorsum of hand	**Intrinscis** – Lateral two lumbricals, Abd. PollicisBrevis and Opp, Pollicis **Extrinscis** – Flexor DigitorumSuperficialis, Flexor DigitorumProfunds of lateral two fingers, Pronator Teres, Palmaris Longus and Flexor Carpi Radialis	Latent clawing of index and middle fingers and Ape thumb
Radial and Posterior Interrosseo us	Trunk / Mixed	Spiral groove –posterio lateral part of the shaft of humerus below Deltoid	Major part over dorsum of fore arm and hand and tiny part over lalteral side of thenar eminence	**Extrinsics** – BrachioRadialis, Ext. Carpi RadialisLongus/Brevis, Extensor DigitorumUlnaris and Communis, Extensor IndicisProprius, Extensor DigistMinimi, Supinator, Extensor PollicisLongus/Brevis, Abductor PollicisLongus	Wrist, fingers and thumb drop
Lateral Popliteal (Common Peroneal)	Trunk / Mixed	At the neck of fibula, below knee posteriorly	Major part over anterio lateral part of the lower leg and foot – dorsum side	**Extrinsics** – Tibialis Anterior, Extensor HallucisLongus / DigitorumLongus, Peroneus Longus/Brevis and Tertius	Anterior / lateral foot-drop
Posterior Tibial	Trunk / Mixed		Sole of the foot	**Intrinsics** – All the interrosseii, lumbricals, abductor hallucisbrevis and abductor digitiminimi **Extrinsics** – Flexor HallucisLongus/DigitorumLongus, Tibialis Posterior and all the three calf muscles	Claw toes and loss of toes gripping

Basis

Physical therapy plays a major role in the management of deformities and disabilities occurring in leprosy. The sooner physiotherapy is started in leprosy patient, the less likely he/she is to develop complications. Therefore, physiotherapy should be started as soon as the patient is diagnosed with leprosy, in order to achieve optimum results.

Physiotherapy in leprosy

Physiotherapy means treatment by physical measures like heal, cold, electricity, light, water and mechanical forces like exercises and splintage. It is an integral part of management of leprosy induced complications and rather considered as adjunct to a comprehensivefunction based rehabilitation plan than cure, for any particular condition.



Physiotherapy is helpful in -

- Restoring the normal tone of muscles and preserving the physiological properties of weak or paralyzed muscles
- Preventing muscle atrophy and the overstretching of weak or paralyzed muscles

- Preventing contractures and keeping the joints mobile by improving the range of movement
- Maintaining and improving blood circulation
- Making the skin soft and supple
- Restoring the functional ability
- Improving the cosmosis

Benefits of integrating physiotherapy in leprosy management:

- Early detection and prompt treatment of reactions to prevent onset of disability
- No new disabilities in patients who are under treatment
- No worsening of existing disabilities/deformities

Physiotherapy can be applied through few modalities which are briefly outlined below.

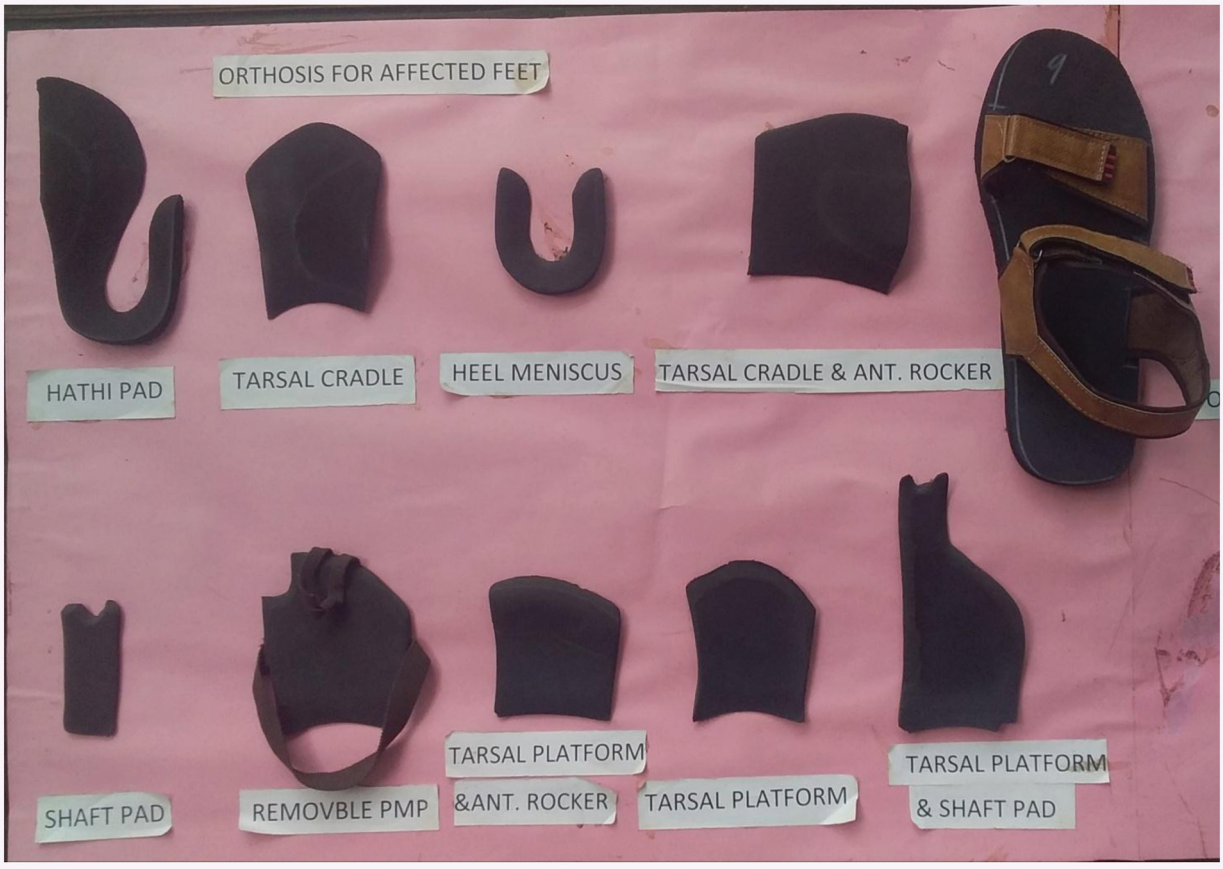
Self-care (the participatory approach): People with deformities are often limited in their activities of daily living (ADL). Deformities often lead to psychosocial and economic problems. Prevention of deformity is therefore of utmost importance in leprosy. It is evident that institutional activities alone are not sufficient to prevent further damage. Sensory and motor impairments are often life-long and therefore need an approach that is sustainable over a long period of time. The strategy that is widely believed to be most effective is known as self-care. It is based on the principle of transferring the prevention activities from the health professional to the individual.

Physical modalities: The modalities that use physical energy for their therapeutic effect include

- Thermotherapy (heat and cold): Effects of general application of heat include relief of pain and muscle spasm, reduction of joint stiffness, and increase in joint range of motion. Superficial heating agents, such as paraffin or wax, are used to heat joints with relatively little tissue covering such as hand and foot.
- Hydrotherapy : soaking for anaesthetic parts, dry skin (where there is autonomous nerve damage) and exercises under water
- Electrotherapy: the therapeutic use of electricity can be used to transcutaneously stimulate nerves or muscles with surface electrodes. Its physiologic effects include muscle group contraction, which can increase joint range of motion (ROM), re-educate muscles and retard muscle atrophy and increase muscle strength.
- Massage: The systematic effect of massage by means of rhythmically applied pressure and stretching of soft tissues can either be mechanical (lymphatic drainage, breaking of adhesion and softening scars) or reflexive (vasodilation, relaxation and sedative effects).

The role of assistive devices in disability management in leprosy: A wide range of assistive devices are available to improve performance of the so called "community survival skills" or ADL when there is a lasting impairment, which cannot be cured completely. In most cases simple devices improving grip function are sufficient to overcome activity limitations. These are foam padding for combs, cutlery and pens, which improve the grip function by simply increasing the contact area between hand and tool. Micro Cellular Rubber (MCR) insole footwear and Orthoses (podiatry pads) belong to this category. MCR distributes the pressure and reduces the force while walking which helps in preventing the first/recurrent ulceration. Podiatry pads provide rest to the ulcer/vulnerable site by elevation and at times increases the weight bearing area (ex: medial arch support). Thus the chance of ulceration is minimized and healing process is hastened.

Fig 1. MCR Footwear and podiatry Orthoses models generally prescribed in Leprosy



Reconstructive Surgery (RCS): RCS aims to restore function and form as far as possible and to prevent further disability. It also plays an important role in prevention of disability and rehabilitation process. Rehabilitation includes all measures aimed at reducing the impact of disability for an individual, enabling him or her to achieve independence, social integration, a better quality of life and self-actualization. Such surgeries on trunkal nerve help in releasing the chronic pain and prevent nerve function impairment. RCS procedures also considered for non-healing or chronic plantar ulcers. Some patients can benefit from RCS but not all patients

are suitable. Pre and post-operative physiotherapy is essential for a successful outcome of surgery. Physical rehabilitation includes physiotherapy and occupational therapy, orthotics and prosthetics services, assistive and protective devices and RCS.

References and further reading resources

- **Training Manual for Medical Officers, 2019. National Leprosy eradication Programme, MOHFW, Govt. of India.**
- **https://www.infontd.org/**
- **https://ilepfederation.org/**

3. VALUE & APPLICATION OF ULTRASONOGRAPHY IN LEPROSY

The diagnosis of leprosy involves the identification of thickened peripheral nerves by clinical palpation. Classical learning has been that the nerves are enlarged only at the sites of predilection like the elbow behind the medial epicondyle and around the head of fibula in the knee where the nerves traverse subcutaneously. However, it is now common knowledge that the nerve thickening could extend both proximally and distally from these sites where the nerve travels in a deeper plane beneath the muscle fascicles where clinical palpation is difficult.

1. Objective assessment of nerve enlargement: Wide intra and inter-observer variations have been observed in clinical palpation of nerves since it is a subjective clinical assessment. **HRUS provides an objective assessment of nerve thickening** where extensive lengths of the nerve can be studied even in the muscular planes or under retinacula, with no limitation to its subcutaneous course. In addition availability of high resolution probes enables us to assess even small anatomical and morphological variations which would otherwise be impossible to ascertain by routine clinical examination. With increased experience of HRUS use in leprosy it is now becoming possible to actually visualize and study individual fascicles in more detail.

2. Early detection of reaction & neuritis in the nerve: Reactions and neuritis in the nerve are known to be associated with hemodynamic changes in both the epineurium and perineurium of nerve fascicles. These changes were formally studied using invasive biopsy techniques where a sliver of suspected nerves were biopsied and studied histologically. Furthermore trunk nerves cannot be biopsied due to the danger of producing iatrogenic nerve damage. Only cutaneous nerves are biopsied and the changes are believed to mirror the changes in the trunk nerve. HRUS enables us to study the trunk nerve in question and look for hemodynamic changes using color Doppler. It may be possible with refinement of technique to be in a position to actually grade the degree of vascular change in the nerve. Studies have shown that even in the absence of clear signs and symptoms like nerve pain or tenderness, HRUS was still able to demonstrate early hemodynamic changes in the nerve progressing into reaction[82] which could be useful once standardized, as an early sign to alert the physician/leprologists to start corticosteroid therapy.

3. Diagnosis of PNL: Approximately, 5-10% of all leprosy patients are of a PNL type, presenting with involvement of nerve(s) without skin lesions and carries the highest risk of deformity. Therefore, in countries where leprosy occurs it can be difficult to differentiate

ulnar nerve neuropathy at the elbow from PNL and it requires a nerve biopsy or fine needle aspiration cytology for the correct diagnosis. In such cases HRUS is very useful to confirm the diagnosis of leprosy with characteristic echotexture, endo neural flow and thickening observed in leprous neuritis.

From a Radiologist's domain, sonography is now a technological development widely used by Obstetricians, Gynecologists, Cardiologists, Neonatologists, Anesthetists and Neurologists as a diagnostic tool. Our experience in two HRUS training workshops conducted in recent years has been that there is a growing interest among dermatologists, neurologists and leprosy specialists to learn and apply this technique at the bed side. We have also noted that with a basic knowledge regarding nerve anatomy and course of the nerves, the technique of tracing nerves by HRUS can be learned easily by clinicians and leprologists to use as a useful tool for leprosy diagnosis, follow up and to assess prognosis.

In conclusion, HRUS is a non-invasive, cost effective tool that gives significant information on nerve structure, morphology, vascularity and real time blood flow in the nerve and this information adds a new dimension to the diagnosis of leprosy and assessment of nerve damage which can prevent disabilities. With an increasing awareness and use of HRUS among neurologists and leprologists it can become a routine tool in clinical practice to improve diagnosis of leprosy, in addition to being a tool to assess extent and severity of nerve involvement.

Additional reading:

1. Elias J Jr, Nogueira-Barbosa MH, Feltrin LT, et al. Role of ulnar nerve sonography in leprosy neuropathy with electrophysiologic correlation. J Ultrasound Med 2009; 28: 1201-9.

2. Jain S, Visser LH, Praveen TL, et al. High resolution sonography: a new technique to detect nerve damage in leprosy. PLoS Negl Trop Dis. 2009; 3(8): e498.

3. Bathala L, Kumar K, Pathapati R, etal. Ulnar neuropathy in Hansen disease: clinical, high-resolution ultrasound and electrophysiologic correlations. J Clin Neurophysiol. 2012; 29(2):190-3.

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I can do it myself!

Tips for people affected by leprosy who want to prevent disability

World Health Organization
Regional Office for South-East Asia

People with leprosy who take medicines given to them at a health centre regularly have less chance of disability. Take your medicine every day, even if your patches look better.

If you notice any of the following, you must go and tell the health worker immediately:

- If patches become red, painful and swollen.
- If you have fever and / or pain in your arms or legs.
- If small painful red bumps appear on your skin.
- If your eyes become red and painful.
- If you notice that things feel different when you hold them, or that your hands or feet are feeling weak.

Medicines for leprosy can cure the disease completely.

You have the power to prevent disability.
The tips given in this book are to remind you how to do it.

Is it difficult for you to close your eyes properly?
Do you often have red eyes?

If "yes" to one or both:

You need to take care of your eyes to prevent damage; the next few pages will help you learn how to take care of your eyes.

Keep your eyes in good condition

Dust, sunlight and dryness can damage eyes. Close your eyes often to protect them.
Make it a regular habit.

During the day:

- Wear glasses or a hat. Ladies can wear a shawl or scarf that can be pulled over the face.
- Be careful of flies; chase them away with a fan or fly whisk.

At night:

- Sleep under a net or blanket, or tie a cloth loosely over your eyes, to keep out dust and insects.

If your eyes are itchy, do ***NOT*** rub them. Pull your eye closed by stretching the skin at the side of your eyes. Use eye drops.

Clean around your eyes and check them in a mirror every morning and evening. If you cannot check them yourself, ask a friend to check them for you. If your eyes are red you should see a health worker or a doctor.

EYES

DANGER

- Dust
- Dryness

ACTION

- Tightly close eyes often

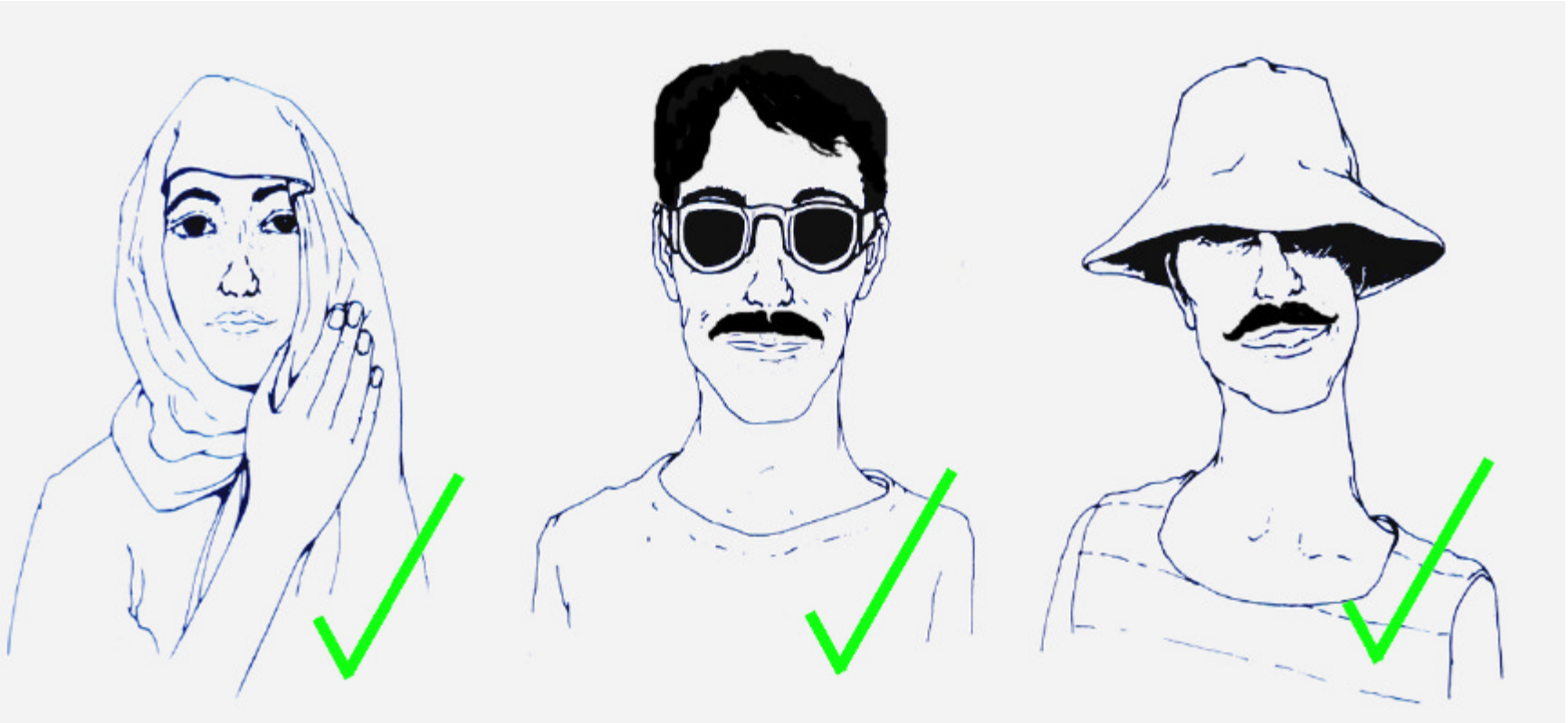
EYES

DANGER

- Dust
- Dryness

ACTION

- Shawl or scarf to cover
- Wear glasses
- Wear hat



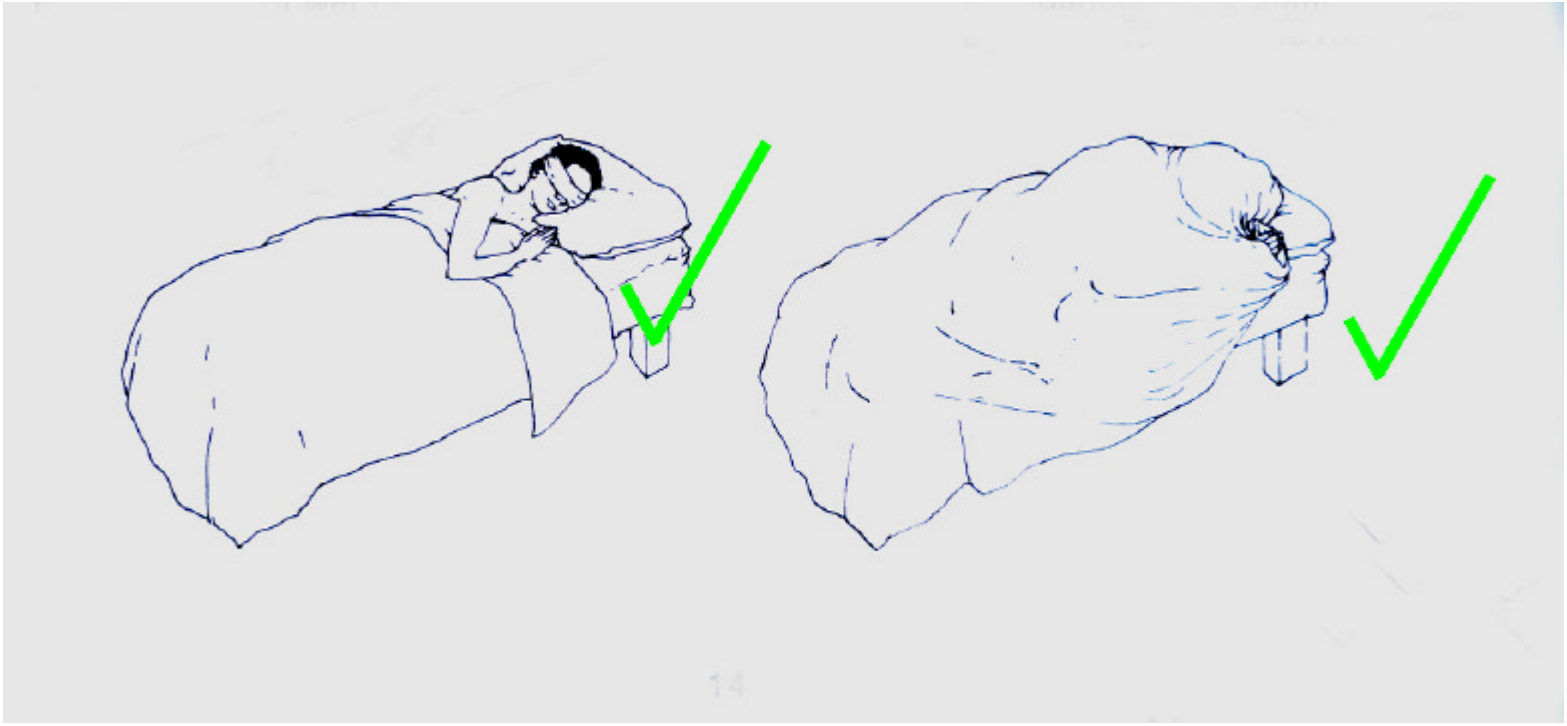
EYES

DANGER

- Night-time insects
- Dirt
- Dust

ACTION

- Blanket
- Cloth cover
- Mosquito net



EYES

DANGER

Rubbing

- Red eyes
- Sore eyes

ACTION

- Pull eyelid to close eye

EYES

DANGER

- Redness

ACTION

- Check in mirror
- Friends to check
- See a health worker or a doctor

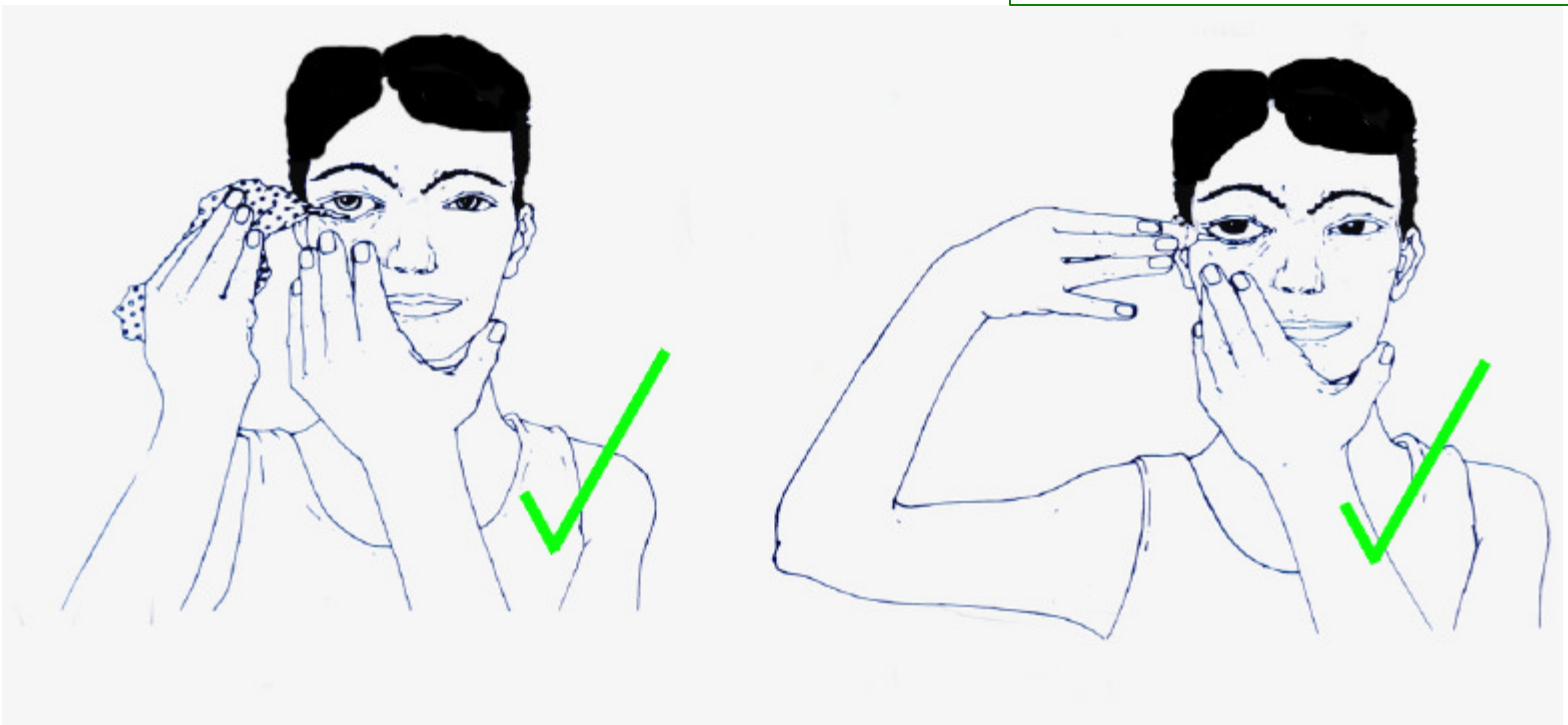
EYES

DANGER

- Dirt

ACTION

- Clear away dirt with clean cloth
- Eye drops



Do you have loss of feeling in your hands?
Do you often have wounds on your hands?

If "yes" to one or both:

You need to take care of your hands to keep them healthy and prevent more damage; the next few pages show you how to care for your hands.

Keep your hands in good condition

The skin on your hands can become dry and cracked:

- Every morning and evening, soak your hands in water for 20 minutes.
- After soaking, scrape off hard skin with something rough.
- Rub some oil on your hands. Vaseline is best.

If you can't feel normally, your hands can easily be injured:

- Use gloves or a cloth to hold hot pots and other hot things.
- Don't hold your hands near the fire if you are cold.
- Wrap cloth around the handles of tools, to protect your hands.
- Check your hands every day to see if there are any wounds.

HANDS

Check hands for

- Wounds
- Redness
- Heat

- Soak hands for 20 minutes
- Scrape away hard skin
- Rub oil on hands

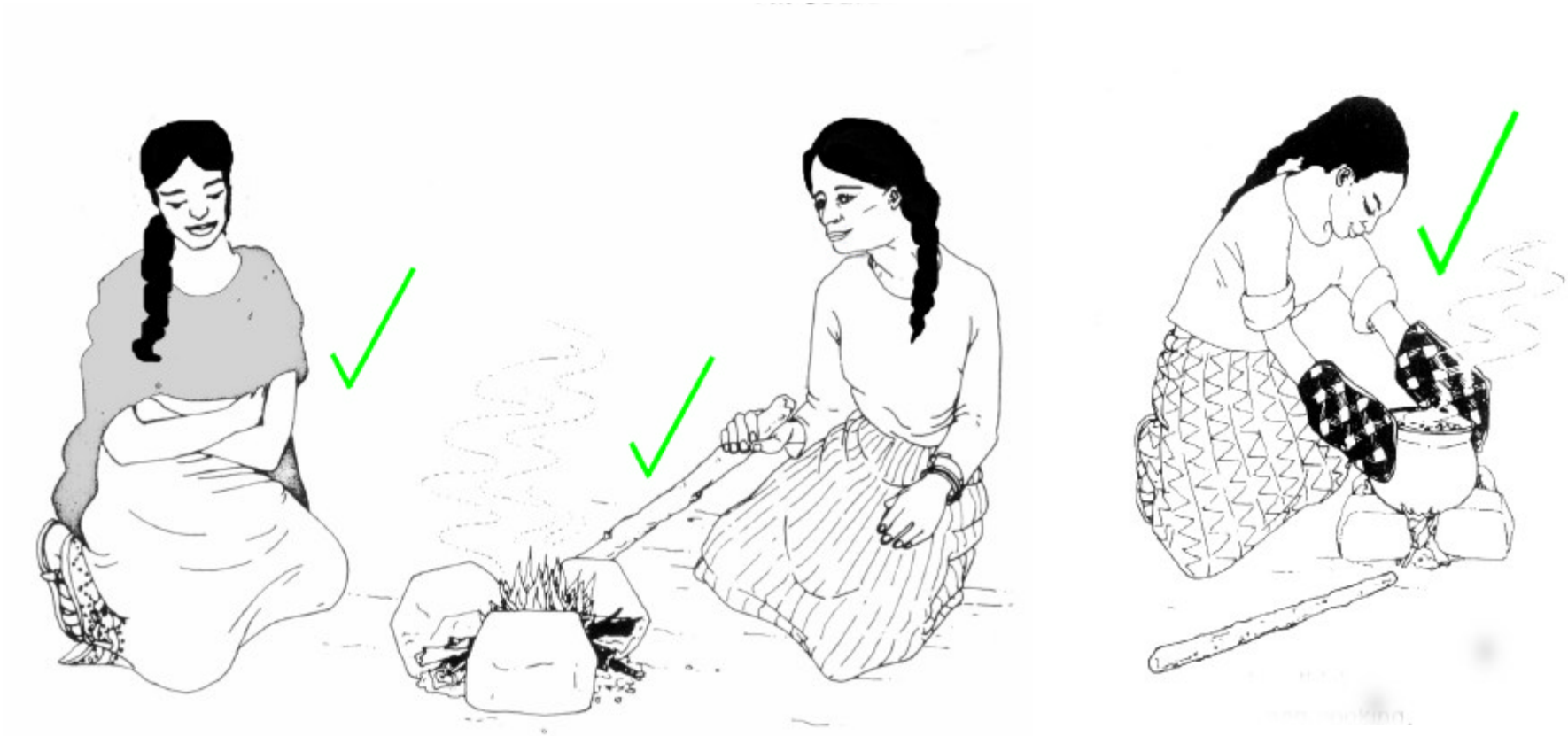
Hands

Fire

- Don’t let hands go near a fire

Cooking

- Use gloves or thick cloth to hold pots



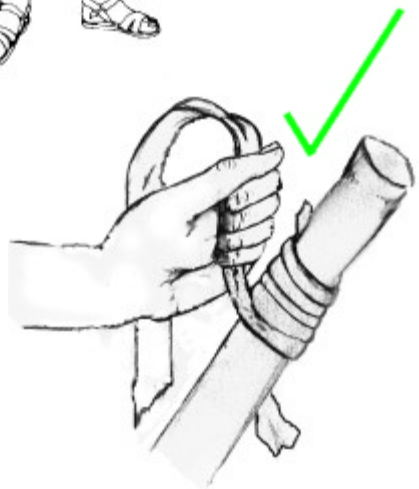
Hands

Danger

- Rough handles
- Thorns
- Hammers

Action

- Make handles smooth
- Put padding on handles
- Use gloves
- Use pliers for holding nails



Do you have any weakness or stiffness in the hands or fingers?

If “yes” :

You can help to reduce stiffness by doing the exercises shown on the next few pages.

You can take care of weak hands yourself

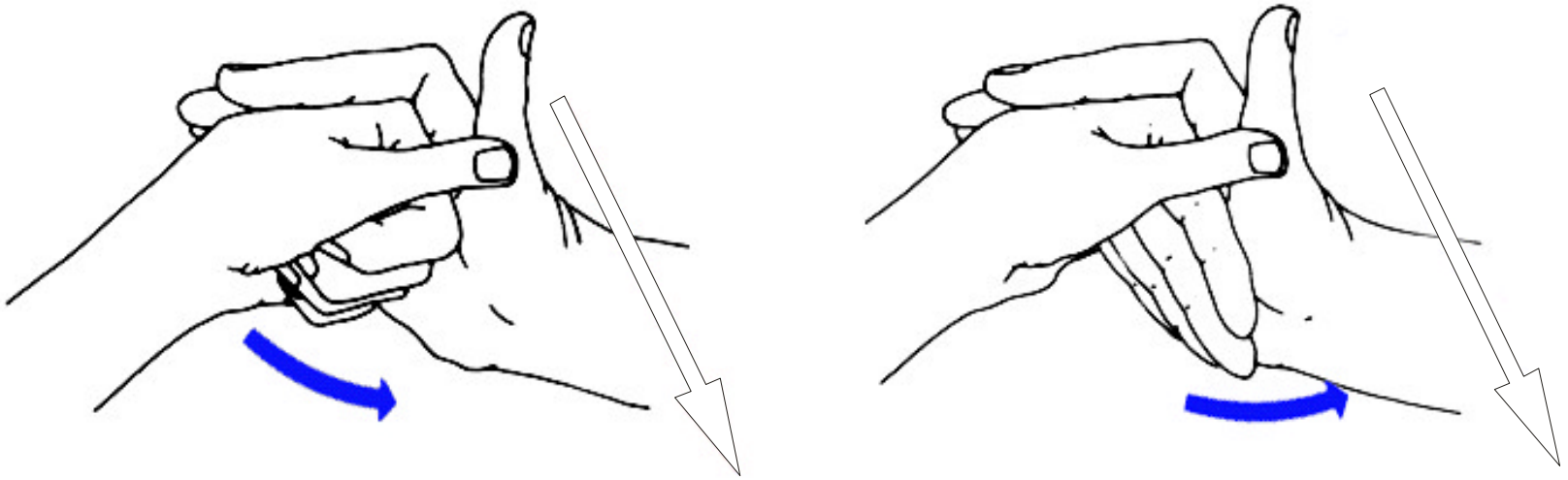
If you have weak hands, you can prevent them from getting worse:

- Develop the **exercise habit**.
- Exercise one hand at a time.

Exercise A: If your hands are weak but you can still grip things:

- Rub oil on your hands.
- Make a fist (not tight) with one hand.
- Put the fist into the other hand.
- Force the fist open so that the fingers go straight.
- Count to ten while you hold your fingers out straight.
- Do it as often as you can and it will become a habit.

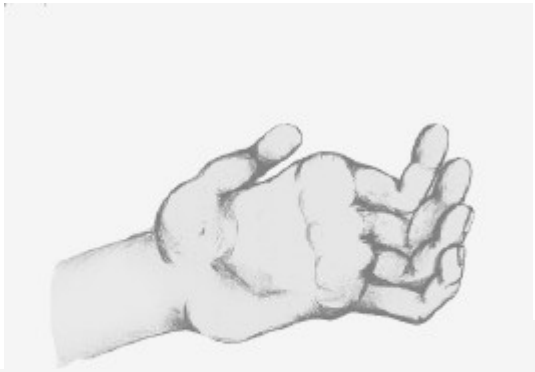
Weak Hands Exercise A



Exercise B: If your hands are weak and you can no longer grip things properly:

- Rub oil on your hands.
- Sit down.
- Put your weak hand on your thigh so that the hand is turned up.
- Push your other hand slowly across the weak hand. (see picture). Push slowly across your thumb and fingers so that they are pushed flat on your thigh.
- While your fingers are flat, count to ten before you relax your hand.
- Do it as often as you can and it will become a habit.

Weak Hands Exercise B



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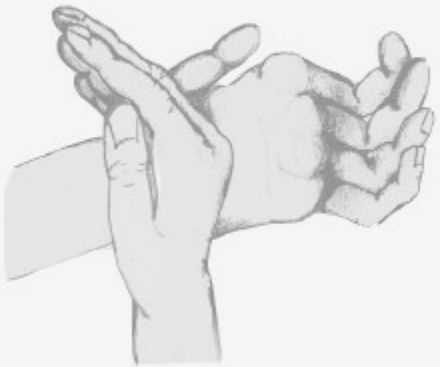

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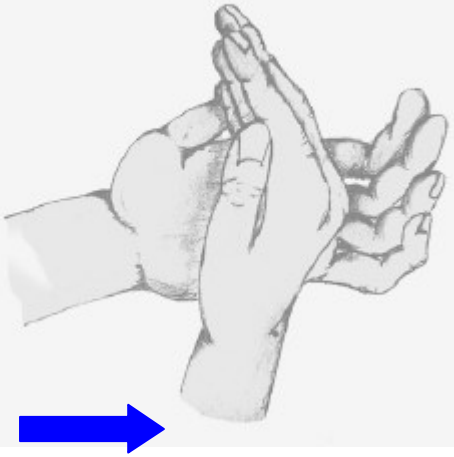

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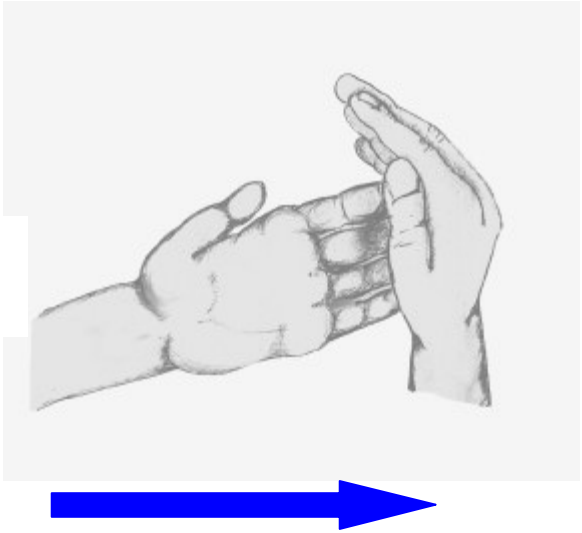

BEST ADVICE

Exercise 3 times every day:

Morning - Do each exercise 10 times
Noon - Do each exercise 10 times
Night - Do each exercise 10 times

Do you have loss of feeling in your feet, or do you often get wounds on your feet?

If "yes":

You need to take care of your feet to keep them healthy and avoid further damage; the next few pages show you how to care for your feet.

Keep your feet in good condition

The skin on your feet can get dry and cracked:

- Every morning and evening, soak your feet in water for 20 minutes.
- After soaking, scrape off hard skin with something rough, like a stone.
- Rub some oil on the skin of your feet. Vaseline is good.

If you walk far, you can get wounds on your feet without noticing them, especially if the feeling in your feet has gone.

To protect your feet, wear shoes or sandals that are soft inside but have hard soles. Don't wear tight shoes. Check shoes daily to see if there is any damage, and to see if there are sharp things inside.

Check your feet daily to see if there are any wounds.

Feet

Check footwear

- For breaks
- Stones
- Sharp things

Check feet

- For wounds
- Redness
- Heat

Feet

- Soak feet for 20 minutes
- Scrape away hard skin
- Rub oil on the feet

Check Feet For

- Wounds
- Redness
- Heat

This is how you can get wounds

- Your foot or hand may not be able to feel pain.
- Sharp things like thorns or nails or knives might break your skin, but you will not feel them.
- Hot things may burn your hands or feet but you will not feel them.
- If you walk your foot may become tired, but you will not feel it. If your foot is tired but it does not rest, the skin under the foot may break.

Things that make feet tired are:

- Walking too fast or too far
- Walking on hard things
- Walking without shoes or sandals
- Walking with bad shoes or sandals

  Bad shoes or sandals are:

  - Shoes or sandals that are not soft
  - Shoes or sandals that are too tight
  - Shoes or sandals that are broken

You can take care of wounds yourself

- If you have a wound, you must find a way to rest it. Try to lie down with your leg lifted.
- If you cannot lie down, stop working when you can and put your foot up, so that you do not stand on it.
- If you must walk, use crutches or a stick. Walk slowly and try to rest often.
- If you must walk remember to wear soft shoes or sandals.
- Soak, scrape and oil your feet every day. Then wrap a clean cloth around your foot to keep dirt and flies out of the wound. Keep old cloth for this purpose, but it must be clean. Use one cloth each day. Wash it well and dry it in the sun before using it again.
- Check your wounds every morning and evening:
  - ❖ If the wounds are getting bigger, or if the skin around the wound is very red and swollen, or if there is any pus, you must see a health worker.
  - ❖ If the wounds are looking smaller, and if they look clean, and if there is no pus, then you can just continue with self care.

Wounds

REST

or

or

Wounds

Check

Soak

Cover

Wound check

or

DANGER

- Pus
- Bigger
- Deeper
- Swelling
- Bad smell

See Health Worker

BETTER

- Smaller
- Clean looking
- No swelling

Self Care

You can take care of your life

- **Prove to others that you are able to prevent disability.**
- **Prove that you can make your life a good example for others to follow.**
- **Find ways to help other people.**
- **At all times, remember that you are special.**

This booklet was developed by Dr. Hugh Cross with guidance from:

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Dr. Paul Saunderson – Leprosy Consultant, American Leprosy Missions

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నా వ్యాధిని నేనే అదుపు చేసుకోగలను!

(కుష్టు వ్యాధి సంక్రమించిన వారికి అంగవైకల్యం రాకుండా
ఉండడానికి అనుసరించే సులువైన మార్గాలు)

World Health Organization
Regional Office for South-East Asia

కుష్టు వ్యాధి సోకిన వారికి ఆరోగ్య కేంద్రంలో ఇవ్వబడే మందులు సక్రమంగా వాడినచో అంగవైకల్యం వచ్చే అవకాశం చాలా తక్కువ. మచ్చలు ఇతర వ్యాధి లక్షణాలు నయమైనట్టు కనిపించినా మందులు మాత్రం ప్రతిరోజు తీసుకోవాల్సిందే.

ఈ క్రింది లక్షణాలు గమనిస్తే ఆరోగ్యకర్తను వెంటనే సంప్రదించాలి.

1. మచ్చలు ఎర్రబడటం గాని, బాధాకరంగా వాయడం కాని
2. జ్వరం గాని కాళ్ళు చేతుల్లో నొప్పి కలగడం గాని
3. చర్మంపై ఎక్కడైనా ఎర్రని దద్దులు కనిపించిన గాని
4. కళ్ళు ఎరుపెక్కడం, నొప్పిగా వుండటం గాని
5. కాళ్ళుచేతుల్లో ఎక్కడైనా బలహీనపడినట్టు మార్పు కనిపించడం గాని

ప్రస్తుతం ఇవ్వబడే మందులు కుష్ట వ్యాధిని సమూలంగా నయం చేయగలవు.

ఈ వ్యాధి ద్వారా వచ్చే ప్రమాదకరమైన అంగవైకల్యాన్ని నివారించుకోగల శక్తి మాత్రం నీలోనే వుంది.

ఈ పుస్తకంలో ఇవ్వబడిన సూచనలు, జాగ్రత్తలు ఎలా పాటించాలో నీకు గుర్తు చేస్తూ సహాయపడతాయి.

నీ కళ్ళను పూర్తిగా మూసుకోవడంలో ఏమైనా ఇబ్బంది అనిపిస్తుందా? కళ్ళు తరచుగా ఎరుపెక్కుతున్నాయా?

పై రెండింటిలో ఏది కొనసాగినా మీ కంటి చూపుకు ప్రమాదం రాకుండా ఉండడానికి మీ కంటి గురించిన జాగ్రత్తలు ఎలా తీసుకోవాలో ఈ తదుపరి పేజీలలో వివరించబడ్డాయి.

మీ కళ్ళను, దృష్టిని పూర్తి ఆరోగ్యవంతంగా ఉంచుకోండి.

దుమ్ము, ధూళి, సూర్యకాంతి మరియు కంటిలో తగినంత తేమ లేకపోవడం - కంటికి చాలా హానికరం.

కళ్ళను తరచుగా మూసుకోవడం - ఒక అలవాటుగా చేసుకోవడం - చాలా ఆరోగ్యకరం.

పగలంతా:

మగవాళ్ళు కళ్ళజోళ్ళు గాని, హ్యాట్ (టోపి) గాని, అలాగే ఆడవాళ్ళు శాలువాగాని, తలరుమాలుని (ముఖం మీదకు లాక్కోగలిగే స్కార్ఫ్) గాని ధరించాలి.

ఈగలు ముఖంపై వాలకుండా చూసుకోవాలి. విసనకర్రతో గాని మరే ఇతర పరికరంతో గాని ఈగల్ని పారద్రోలాలి.

రాత్రిళ్ళు :

దుమ్ము, ధూళినుండే కాక క్రిమి కీటకాల నుండి రక్షణ పొందుటకై దోమ తెరను కాని, బ్లాంకెట్‌ను కాని ఉపయోగించవలెను. కళ్ళను కప్పివేయడానికి తేలికపాటి గుడ్డనైననూ వాడవచ్చును.

కళ్ళలో ఒకవేళ దురదలు అనిపించినచో కళ్ళను నలపడం, రుద్దడం చేయకూడదు. కంటి చర్మాన్ని జాగ్రత్తగా ప్రక్కకు లాగి మందుచుక్కలు వేసికోవలెను.

కళ్ళ చుట్టూ ఉండే చర్మాన్ని శుభ్రపరుస్తూ ప్రతిరోజు ఉదయం, సాయంత్రం గమనిస్తూ ఉండాలి. ఒకవేళ కళ్ళు ఎరుపెక్కినట్లయితే వెంటనే ఆరోగ్య కార్యకర్తను /డాక్టరును గాని సంప్రదించవలెను.

కళ్ళు

అపాయకరం

దుమ్ము, ధూళి
పాడిబారడం

నివారణ చర్యలు

కళ్ళు తరచుగా గట్టిగా
మూసుకోవడం చేయాలి.

కళ్ళు

అపాయకరం

దుమ్ము, ధూళి
పాడిబారడం

నివారణ చర్యలు

తల ముఖంపై నుండి కళ్ళను కప్పి ఉంచగలిగే
ఏదైనా శాలువా / స్కార్ఫ్ వంటి వస్త్రం
కళ్ళజోడును ధరించడం
తలపై టోపీ ధరించడం

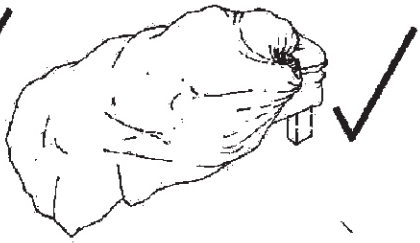
కళ్ళు

అపాయకరం

రాత్రిళ్ళు సంచరించే
క్రిమి కీటకాదులు
మురికి, ఇతర మలినాలు
దుమ్ము, ధూళి

నివారణ చర్యలు

దుప్పటి కప్పుకోవడం
కళ్ళను కప్పి ఉంచే ఏదైనా వస్త్రం
దోమ తెర ఉపయోగించడం



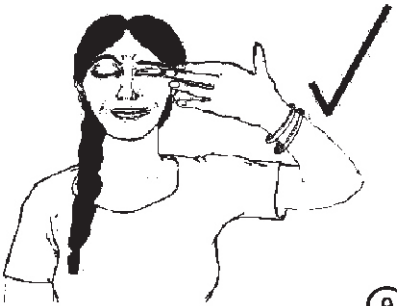
కళ్ళు

అపాయకరం

రుద్దడం :
ఎరుపెక్కిన కళ్ళు
పుండుగా మారిన కళ్ళు

నివారణ చర్యలు

కనురెప్పల్ని ప్రక్కకు లాగి
కంటిని మూయాలి.



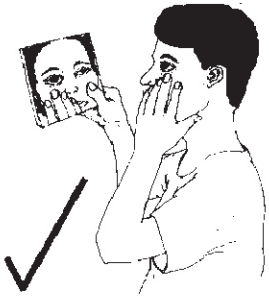
కళ్ళు

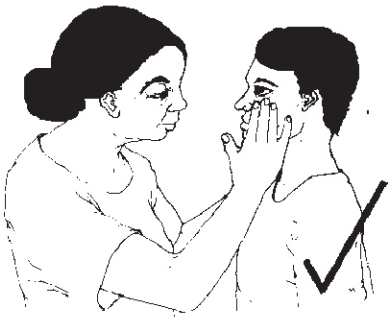
అపాయకరం

ఎరుపెక్కిన కళ్ళు

నివారణ చర్యలు

అద్దంలో పరీక్షించుకోవడం
ఇతరులచే పరీక్షించుకోవడం
ఆరోగ్య కార్యకర్తను / డాక్టరును
సంప్రదించడం.





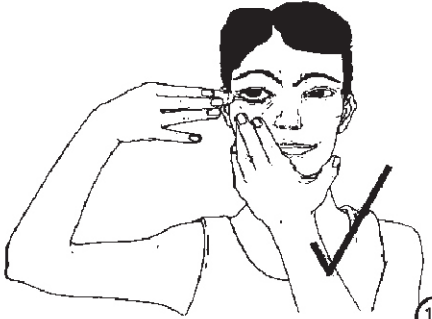
కళ్ళు

అపాయకరం

ఎరుపెక్కిన కళ్ళు

నివారణ చర్యలు

పరిశుభ్రమైన గుడ్డతో నలుసును
తొలగించాలి. కంటిలో
చుక్కల మందును వేయాలి.



చేతులు మొద్దుబారిపోతున్నట్లు ఉన్నాయా?
తరచుగా చేతులపై పుండ్లు, గాయాలు ఏర్పడుతున్నాయా?

పై రెంటిలో దేనికైనా "ఔనని" సమాధానమొస్తే :

మీరు చేతికి సంబంధించిన ఆరోగ్య సూత్రాన్ని తప్పక పాటించాలి.
మీ చేతులకు మరింత అంగవైకల్యం రాకుండా ఉండడానికి ఎలాంటి
జాగ్రత్తలు పాటించాలో ఈ ముందు పేజీలలో వివరించబడింది.

మీ చేతులను సురక్షితంగా ఉంచుకోండి!

చేతిపై ఉండే చర్మం పాడిబారి పోయినట్లుగాని, పగుళ్ళు గాని కనిపిస్తే :

చేతులను ప్రతిరోజు ఉదయం, సాయంత్రం 20 నిమిషాలు నీటిలో ఉంచాలి.

ఏదేని గరుకు వస్తువుతో చేతులను శుభ్రపరచుకోవాలి.

నూనె గాని, వాజిలిన్‌తో గాని చేతులు మర్ధన చేసుకోవాలి.

స్పర్శజ్ఞానం కోల్పోయిన చేతులకు తేలికగా గాయాలు ఏర్పడే ప్రమాదం ఉంది :

వేడి పాత్రలు, పదార్థాలు పట్టుకునేందుకు గ్లౌస్ లేదా బట్టను ఉపయోగించాలి.

చలిమంట కాచుకునే దగ్గర చేతులు దూరంగా ఉంచుకోవాలి.

మీ చేతులు ఘర్షణ (రాపిడి) నుండి రక్షించుకునేందుకు మీరు నిత్యం వాడే పనిముట్ల పిడులకు మెత్తని గుడ్డను చుట్టి వాడవలెను.

ప్రతిరోజు చేతులపై గాయాలను పరీక్షించుకొనవలెను.

చేతులు

చేతులను ఇలా పరీక్షించుకోవాలి :

చేతులపై గాయాలు

ఏమైనా అయినవా?

ఎరుపెక్కినవా?

వేడెక్కినవా?

చేతులను 20 నిముషాల పాటు నీళ్ళలో వుంచాలి.

ఏదేని గరుకు వస్తువుతో శుభ్రపరచుకోవాలి.

నూనెతో చేతులు రుద్దుకోవాలి.

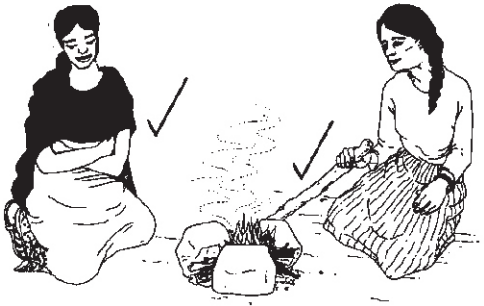
చేతులు

నిప్ప / మంట

నిప్ప / మంట దగ్గరగా
చేతులు వుంచరాదు.

వంట చేసేటప్పుడు

వేడి పాత్రలను పట్టుకునేటప్పుడు
గ్లౌస్ గాని దళసరి గుడ్డను గాని
ఉపయోగించవలెను.

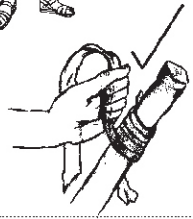


చేతులు

ప్రమాదకరం

గరుకైన పిడులు,

ముండ్లు, సుత్తి వంటి పనిముట్లు



నివారణ చర్యలు

చేతులతో ఉపయోగించే పిడులను నునుపు చేయాలి లేక మెత్తని గుడ్డను చుట్టాలి. చేతులకు గ్లౌస్ ధరించాలి. ఇనుప మేకుల్లాంటి వాటిని చేతితో కాకుండా వేరే పనిముట్ల సహాయంతో పట్టుకోవాలి.

మీ చేతి వేళ్ళు బలహీనంగా గాని గట్టిగా మారి నొప్పితో వున్నాయా?

అవుననిపిస్తే,

ప్రక్కపేజీలో వివరించిన విధంగా వ్యాయామం చేస్తూ
మీ చేతి వేళ్ళ నొప్పులను / బలహీనతను తొలగించుకోవచ్చును.

పై విధంగా బలహీనపడిన/స్పర్శ జ్ఞానం కోల్పోయిన మీ చేతులను మీరే కాపాడుకోవచ్చు. మీ చేతులు బలహీనపడి పట్టు కోల్పోతే - ముందు జాగ్రత్త చర్యలు ఈ విధంగా వుండాలి.

చేతులకు ఎక్సర్‌సైజ్ (వ్యాయామం) చేయడం అలవాటు చేసుకోవాలి.

ఒక్కసారి ఒక్క చేతికే వ్యాయామం చేయాలి.

వ్యాయామం : ఎ. నూనెతో రెండు చేతులు మర్ధన చేసుకోవాలి.

ఒక చేతితో పిడికిలి బిగించాలి.

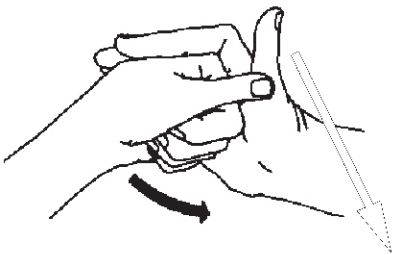
బిగించిన పిడికిలిని ఇంకో చేతిలో వుంచాలి.

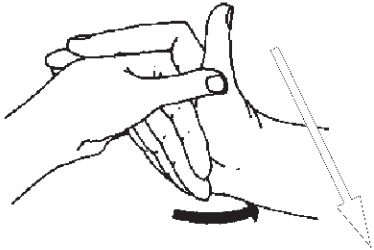
పిడికిలి తెరుస్తూ వేళ్ళను నిటారుగా ఉండేటట్టు చేయాలి.

పై విధంగా వేళ్ళను చక్కబరిచేటప్పుడు
1 నుండి 10 అంకెలు లెక్కించాలి.

ఈ వ్యాయామాన్ని వీలైనన్నీ సార్లు చేయడం
అలవాటు చేసుకోవాలి.

బలహీన పడిన చేతికి
చేయాల్సిన వ్యాయామం - ఎ





వ్యాయామం : బి.

బలహీనపడి పట్టు కోల్పోయిన చేతివేళ్ళను ఈ క్రింది విధంగా వ్యాయామం చేయాలి.

చేతులకు నూనె పట్టించాలి.

క్రింద (నేలపై) కూర్చోవాలి.

పట్టు కోల్పోయిన చేతిని తొడపై పెట్టుకోవాలి.

మరో చేతితో బ్రొటనవేలు ఇతర వేళ్ళ మీది నుండి నెట్టుకుంటూ వెళ్ళాలి.

బొమ్మలో చూపిన విధంగా పట్టు కోల్పోయిన చేతివేళ్ళను చక్కబరిచేటప్పుడు

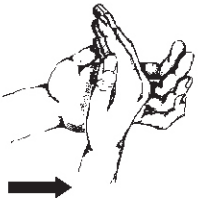
1 నుండి 10 అంకెలు లెక్కిస్తూ చేతలకు విశ్రాంతిని ఇవ్వాలి.

ఈ వ్యాయామాన్ని వీలైనంత తరచుగా చేయడం అలవాటు చేసుకోవాలి.

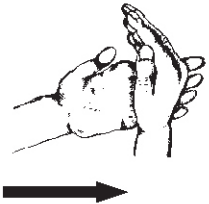
బలహీన పడిన చేతికి చేయాల్సిన వ్యాయామం - బి

1.

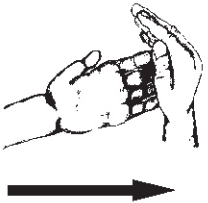
2.



3.



4.



అత్యుత్తమ సలహా :

ఈ వ్యాయామాన్ని ప్రతిరోజూ 3 సార్లు చేయాలి.

ఉదయం : ప్రతి వ్యాయామం 10 నిముషాలు చేయాలి.

మధ్యాహ్నం : ప్రతి వ్యాయామం 10 నిముషాలు చేయాలి.

రాత్రి : ప్రతి వ్యాయామం 10 నిముషాలు చేయాలి.

పాదాలలో (కాళ్ళల్లో) స్పర్శజ్ఞానం కోల్పోవడం లేక తరచుగా కాళ్ళపై గాయాలవుతున్నాయా?

అవుననిపిస్తే,

మీ పాదాలను జాగ్రత్తగా చూసుకోవడం ఎంతో అవసరం. ఈ తదుపరి పేజీల్లో వివరించినట్లు మీ పాదాల వ్యాయామాన్ని ఆచరించి మీ కాళ్ళను ఆరోగ్యవంతంగా వుంచుకోవచ్చు.

మీ పాదాలను ఆరోగ్యవంతంగా వుంచుకోండి!

పాదాలపై (కాళ్ళపై) చర్మం పాడిబారటం, పగుళ్ళు రావడం జరుగుతూవుంటే, కాళ్ళను ప్రతిరోజూ ఉదయం, సాయంత్రం 20 ని॥ల పాటు నీళ్ళలో వుంచాలి.

నీళ్ళలో 20 ని॥లు వుంచిన తరువాత గరుకు రాయితో రుద్దుకొని శుభ్రపరచాలి. తరువాత నూనెతో గాని వ్యాజిలెన్‌తో గాని కాళ్ళకు మర్ధన చేయాలి.

స్పర్శ జ్ఞానం కోల్పోయిన కాళ్ళతో ఎక్కువ దూరాలు నడిస్తే పాదాలపై గాయాలు ఏర్పడే ప్రమాదం వుంటుంది.

పాదాల రక్షణ కొరకు లోపల మెత్తని రబ్బరుతో చేయబడిన బూట్లు / శాండిల్స్ వాడవలెను. బిగుతైన పాదరక్షలు వాడకూడదు. ప్రతిరోజూ పాదరక్షల్ని (బూట్లు, శాండిల్స్) పరీక్షించుకోవలెను.

పాదాలపై గాయాలు / పుండ్లు రాకుండా పరిరక్షించుకోవాలి.

పాదరక్షల పరిరక్షణ

పాదాలు

పాదరక్షల పరిరక్షణ

(ఈ క్రింది వాటికొరకు పరీక్షించుకోవాలి)

తెగిపోయినచో

రాళ్ళు వున్నచో

పదునైన వస్తువులు వున్నచో

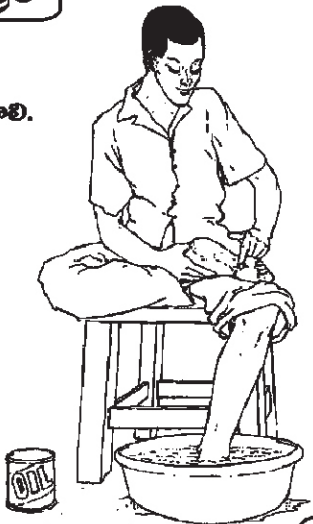
గాయాలు కావడం

ఎర్రబడడం

వేడిగా వుండటం

పాదాలు : భద్రత

20 ని॥లు ప్రతిరోజు పాదాల్ని నీటిలో వుంచాలి.
గరుకైన రాయితో చర్మాన్ని రుద్దుకోవాలి.
సూనెతో మర్ధన చేయాలి.



పరిరక్షణ

గాయాలు
ఎర్రబడటం
వేడిగా వుండటం

మీకు కాళ్ళపై గాయాలు / పుండ్లు ఇలా వస్తాయి?

- మీ చేతులు కాళ్ళల్లో స్పర్శజ్ఞానం కోల్పోవడం జరుగుతుంది.
- పదునైన వస్తువులు (ముండ్లు, మోలలు, కత్తులు మొ॥నవి) వాడినప్పుడు చర్మం చిట్లి గాయాలు ఏర్పడిననూ మీకు స్పర్శజ్ఞానం లేకపోవడం వల్ల బాధ ఏమి తెలియదు.
- వేడి వస్తువులు, పదార్థాలు చేతులను, కాళ్ళను కాల్చివేసినా భాద ఏమాత్రం తెలియదు.
- ఎక్కువ దూరాలు నడవడం వల్ల అలసట తెలియకపోవడంతో చర్మంలో పగుళ్ళు వస్తాయి.
- పాదాలు అలసి పోవడానికి కారణాలు ఈ క్రింది విధంగా ఉంటాయి.
- త్వరత్వరగా (వేగంగా) నడవడం - ఎక్కువ దూరం నడవడం.
  గట్టి నేల - రాళ్ళపై నడవడం
- అనుకూలంగా లేని చెడు పాదరక్షలు ధరించడం వల్ల
  చెడు పాదరక్షలు ఈ క్రింది విధంగా ఉంటాయి.
- మెత్తగా లేని పాదరక్షలు, బిగుతుగా వున్న పాదరక్షలు, తెగిపోయిన పాదరక్షలు

మీరు ఈ క్రింది విధంగా మీ కాలి గాయాలకు మీరే రక్షణ కల్పించుకోవచ్చు!

- మీకు గాయమైనప్పుడు దానికి తగినంత విశ్రాంతిని ఇవ్వడం తప్పనిసరి, కాళ్ళను పైకి ఎత్తి పడుకోవాలి.
- పడుకోలేని పరిస్థితిలో పనిచేయడం మానివేయాలి. కాలిపై శరీరపు బరువు వేయకపోవడం మంచిది.
- నడవడం తప్పనిసరి అయినప్పుడు క్రచెస్ గాని చేతికర్ర సాయంతో గాని నెమ్మదిగా నడవాలి. వీలైనప్పడల్లా (తరచుగా) కాలికి విశ్రాంతినివ్వాలి.
- నడవాల్సినప్పడల్లా మెత్తటి బూట్లు గాని, సాండిల్స్ గాని ధరించడం మరవద్దు.
- కాళ్ళను నీళ్ళలో వుంచడం, శుభ్రపరచడం నూనె వ్రాయటం ప్రతి రోజూ చేయాలి.

గాయాలు విశ్రాంతి

ఇలా

లేక

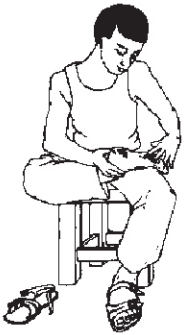
ఇలా

ఇలా

లేక

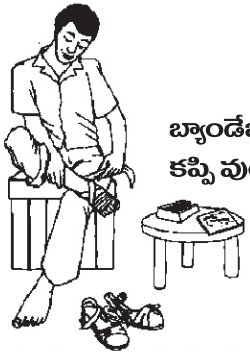
ఇలా

గాయాలు



పరీక్షించుకోవాలి

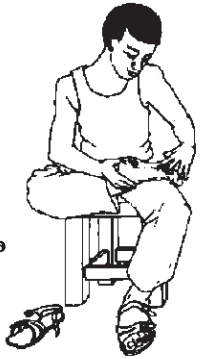
నీళ్ళలో పాదాలు
20 ని॥లు వుంచాలి.



బ్యాండేజితో
కప్పి వుంచాలి.

గాయాల్ని పరీక్షించుకునే పద్ధతి

ఇలా



లేక

ప్రమాదకరం
చీము పట్టడం
పెద్ద గాయాలు
లోతైన గాయాలు
గాయం వాచిపోవడం
చెడువాసన రావడం

వెంటనే
ఆరోగ్యకర్తను
సంప్రదించాలి.

సాధారణ పరిస్థితి
చిన్న గాయం
శుభ్రంగా వున్న
గాయం
వాపు లేని గాయం

ఇంటి చికిత్స
సరిపోతుంది.

మీ జీవితాన్ని మీరే రక్షించుకోగలరు!

- ✓ అంగవైకల్యం నుండి మీరు ఎలా రక్షించుకోబడ్డారో ఇతరులకు నిరూపించండి.
- ✓ మీ జీవితాన్ని ఆదర్శప్రాయంగా నిరూపిస్తూ ఇతరులు మీ బాటలో నడిచేలా చేయండి.
- ✓ మీ తోటి వారలకు మీరు ఎలా సహాయపడగలరో మార్గాలను అన్వేషించండి.
- ✓ మీరొక ప్రత్యేక వ్యక్తిత్వం గల మనిషిగా ఎల్లవేళలా గుర్తించండి.

Translated by

P. Narasimha Rao

MD., D.D., Ph.D.

உன் வாழ்க்கை உன் கையில்!

தொழுநோயாளிகளுக்கான சில குறிப்புகள்

World Health Organization
Regional Office for South-East Asia

தொழுநோயாளிகள் தங்களுக்கு மருத்துவ மையங்களால் வழங்கப்படும் மருந்துகளைத் தவறாமல் உட்கொண்டால் குறைபாடுகளைத் தவிர்க்கலாம். படையின் நிறம் மாறினாலும் தினமும் மருந்து உட்கொள்ளுதல் மிகவும் அவசியம்.

கீழ்க்கண்ட அறிகுறிகள் தென்பட்டால் மருத்துவ ஆலோசகரை உடனே அணுகவும்.

- படை வீக்கத்துடன் சிவந்து வலி ஏற்பட்டால்
- காய்ச்சலுடன் கை கால்களில் வலி ஏற்பட்டால்
- வலியுடன் சிவந்த சிறு கட்டிகள் தோலில் தோன்றினால்
- கண்கள் சிவந்து வலி ஏற்பட்டால்
- பொருட்களைத் தொடும்பொழுது உணர்ச்சிகள் மாறுபட்டாலோ அல்லது கைகள் மற்றும் பாதங்களில் பலவீனம் ஏற்பட்டாலோ.

மருந்துகளால் தொழுநோயை முற்றிலும் குணப்படுத்தலாம்.

இயலாமையிலிருந்து தற்காத்துக் கொள்ள உங்களால் [மட்டுமே] முடியும்.

கீழ்கண்ட வழிமுறைகளைப் பின்பற்றினால்...

கண்களை முழுமையாக மூடுவதில் சிரமம் உள்ளதா?
கண் அடிக்கடி சிவந்து காணப்படுகிறதா?

ஆம் எனில்:
மேலும் கண்கள் பாதிப்படையாமல் தடுக்க கண்களைப் பாதுகாத்தல் அவசியம்.

கண் பாதுகாப்பிற்கான சில தகவல்கள் உங்களுக்காக...

கண்களை நல்ல நிலையில் வைத்துக்கொள்ள வேண்டும்.

தூசு, சூரிய ஒளி மற்றும் வறட்சி ஆகியவை கண்களைப் பாதிக்கலாம்.
கண்களைப் பாதுகாக்க அடிக்கடி கண்களை மூட வேண்டும்.
இதனை வழக்கமாகக் கொள்ளவேண்டும்.

பகலில்

- கண்ணாடி அல்லது தொப்பி அணியவும்.
- பெண்கள் சால்வையால் முகத்தை மூடிக்கொள்ளலாம்.
- பூச்சிகளிடம் எச்சரிக்கையாக இருக்கவும்.
  விசிறி அல்லது மின்விசிறியால் அவற்றை விரட்டவும்.

இரவில்

தூங்கும்பொழுது தூசு மற்றும் பூச்சிகளிடமிருந்து கண்களைப் பாதுகாக்க கொசுவலை அல்லது போர்வை அல்லது துணியைப் பயன்படுத்தவும்.

கண்களில் அரிப்பு ஏற்பட்டால் தேய்க்கக்கூடாது.
கண் அருகிலுள்ள தோலை இழுத்து கண்களை மூடவும்.
சொட்டு மருந்துகளை பயன்படுத்தவும்.

தினசரி காலையும், மாலையும் கண்ணாடியைப் பார்த்து கண்களைச் சுத்தம் செய்யவும். உங்களால் இயலாவிட்டால், நண்பரின் உதவியை நாடவும்.

கண்கள் சிவந்து காணப்பட்டால் மருத்துவ ஆலோசகர் அல்லது மருத்துவரை அணுகவும்.

கண்கள்

அபாயம்

- தூசு
- வறட்சி

செயல்

- கண்களை அடிக்கடி இறுக்கமாக மூடவும்

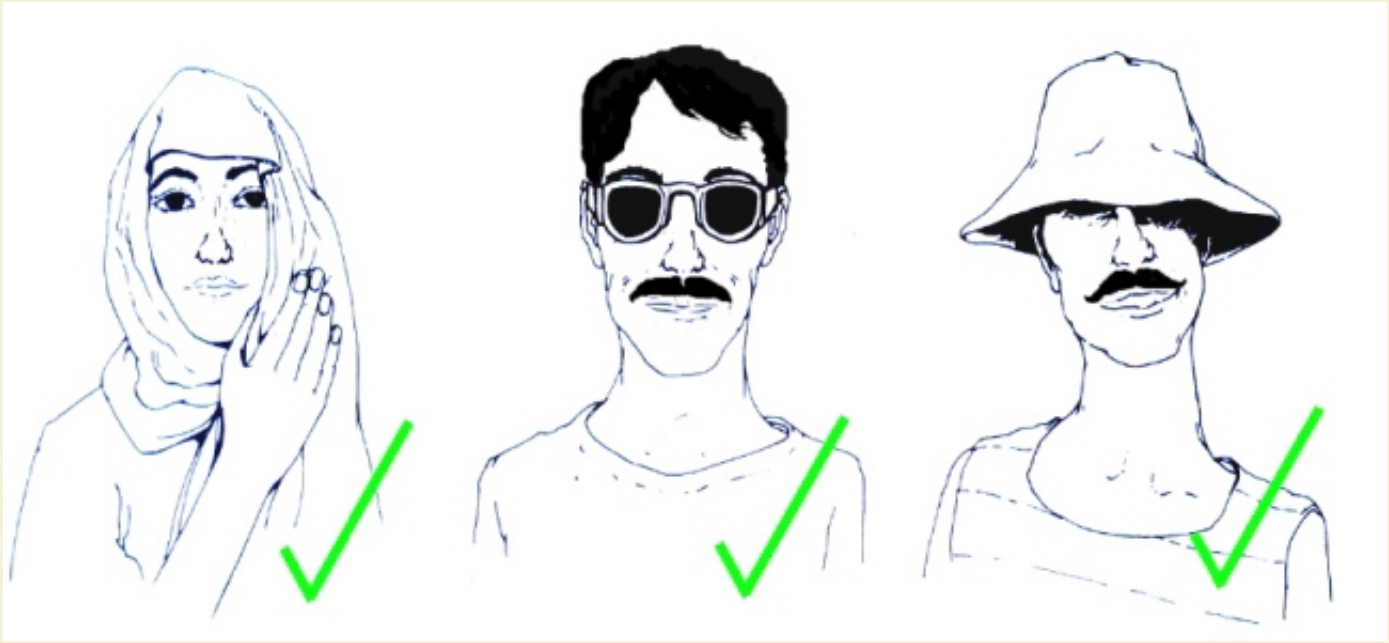
கண்கள்

அபாயம்

- தூசு
- வறட்சி

செயல்

- சால்வையால் மூடவும்
- கண்ணாடி அணியவும்
- தொப்பி அணியவும்



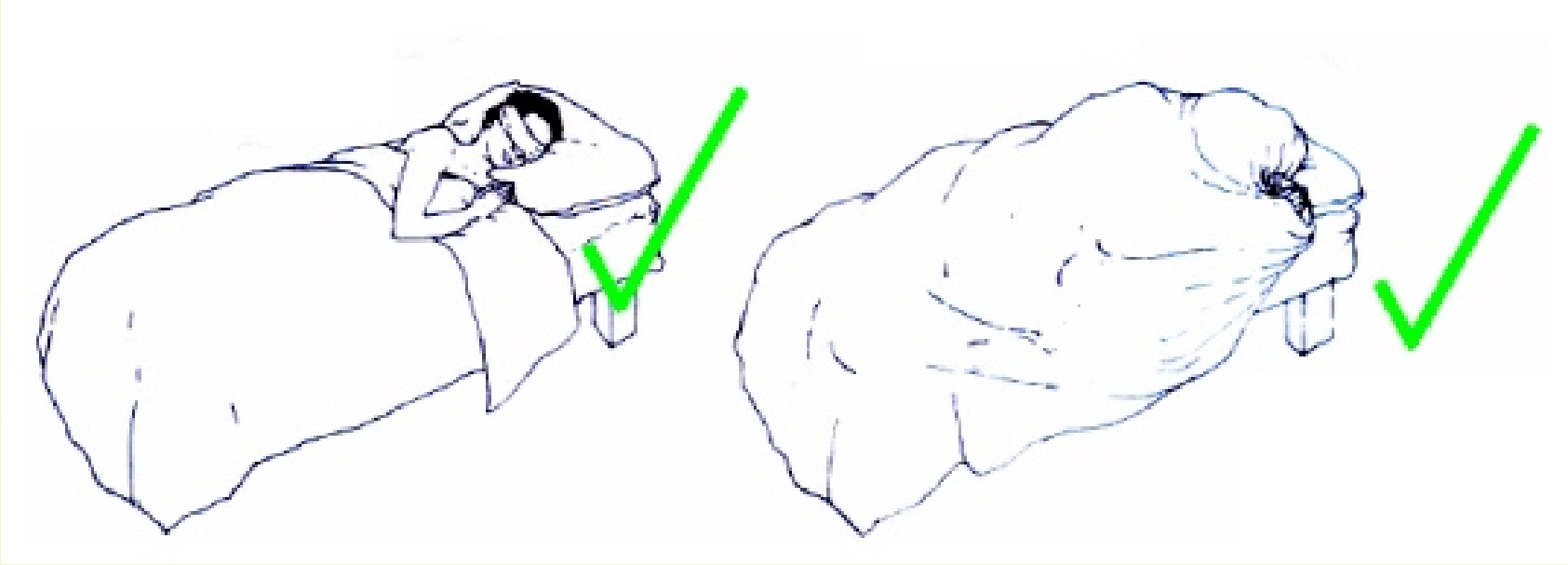
கண்கள்

அபாயம்

- இரவு நேரப்பூச்சிகள்
- அழுக்கு
- தூசு

செயல்

- போர்வை அல்லது துணியால் மூடுதல்
- கொசுவலை



கண்கள்

அபாயம்

- கண்களைத் தேய்த்தல்
- சிவந்த கண்கள்
- கண்களில் புண்

செயல்

- இமைகளை இழுத்துக் கண்ணை மூடவும்

கண்கள்

அபாயம்

- சிவந்த நிறம்

செயல்

- கண்ணாடியில் பரிசோதிக்கவும்
- நண்பர்களைக் கொண்டு பரிசோதிக்கவும்
- மருத்துவர் அல்லது மருத்துவ ஆலோசகரை அணுகவும்

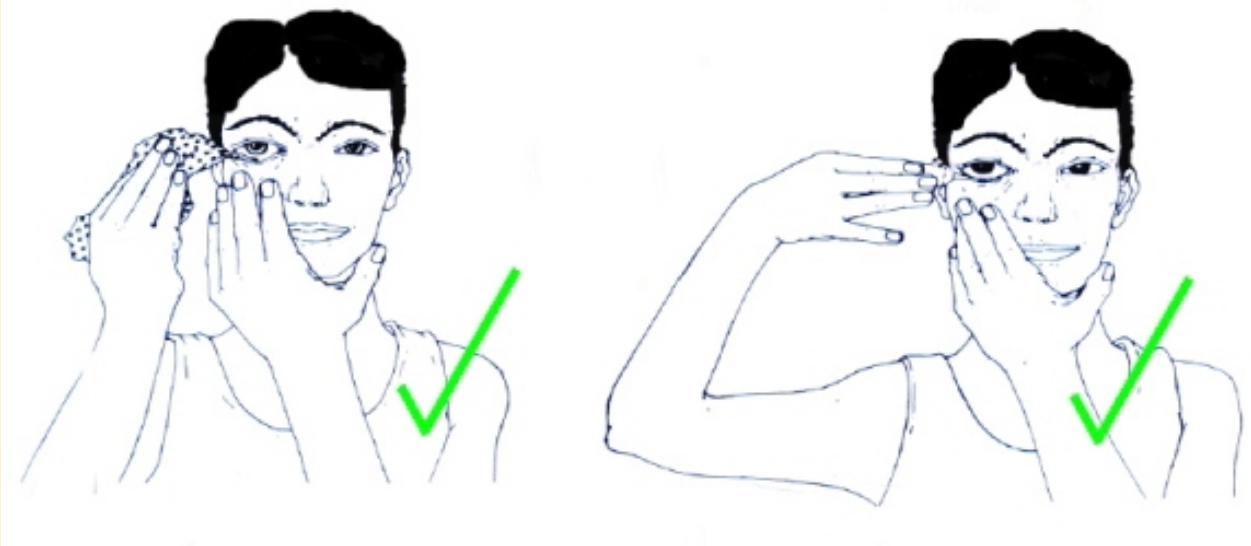
கண்கள்

அபாயம்

- தூசு

செயல்

- சுத்தமான துணியால் தூசுகளை அகற்றவும்
- சொட்டு மருந்து



கைகள்

கைகள் மறத்துக் காணப்படுகிறதா?
கைகளில் அடிக்கடி புண்கள் ஏற்படுகிறதா?

ஆம் எனில்:
மேலும் பாதிப்புகளைத் தடுக்க நீங்கள் உங்கள் கைகளைப் பாதுகாக்க வேண்டும்.

வரும் பக்கங்களில் கைகளைப் பாதுகாக்கச் சில ஆலோசனைகள் உள்ளன.

கைகளை நல்ல நிலையில் வைத்திருக்கவேண்டும்.

கைகளிலுள்ள தோலில் வறட்சி மற்றும் வெடிப்பு ஏற்படலாம்.

- தினமும் காலையும் மாலையும் 20 நிமிடம் கைகளைத் தண்ணீரில் வைக்கவும்.
- பின்னர் சொரசொரப்பான பொருளைக்கொண்டு தோலின் கடினமான பகுதியை நீக்கவும்.
- கைகளில் ஏதேனும் எண்ணெயைத் தடவவும். 'வாசலின்' மிகவும் நல்லது.

கைகளில் உணர்ச்சிக் குறைபாடு இருந்தால் எளிதில் காயம் ஏற்படலாம்.

- சூடான பொருட்களைக் கையாளும் பொழுது கையுறை அல்லது துணியைப் பயன்படுத்தவும்.
- குளிர் ஏற்பட்டால், கைகளைத் தீயின் அருகில் வைக்காதீர்கள்.
- கைகளைப் பாதுகாக்கக் கருவிகளைத் துணியால் மூடிப்பயன்படுத்தவும்.
- தினமும் கைகளில் ஏதேனும் புண்கள் உள்ளனவா என்று சரிபார்க்கவும்.

கைகள்

கைகளில் கவனிக்க

- புண்கள்
- சிவப்பு நிறம்
- சூடு

செயல்

- 20 நிமிடங்கள் கைகளைத் தண்ணீரில் வைக்கவும்
- கடினமான தோலை அகற்றவும்
- எண்ணையைத் தடவவும்

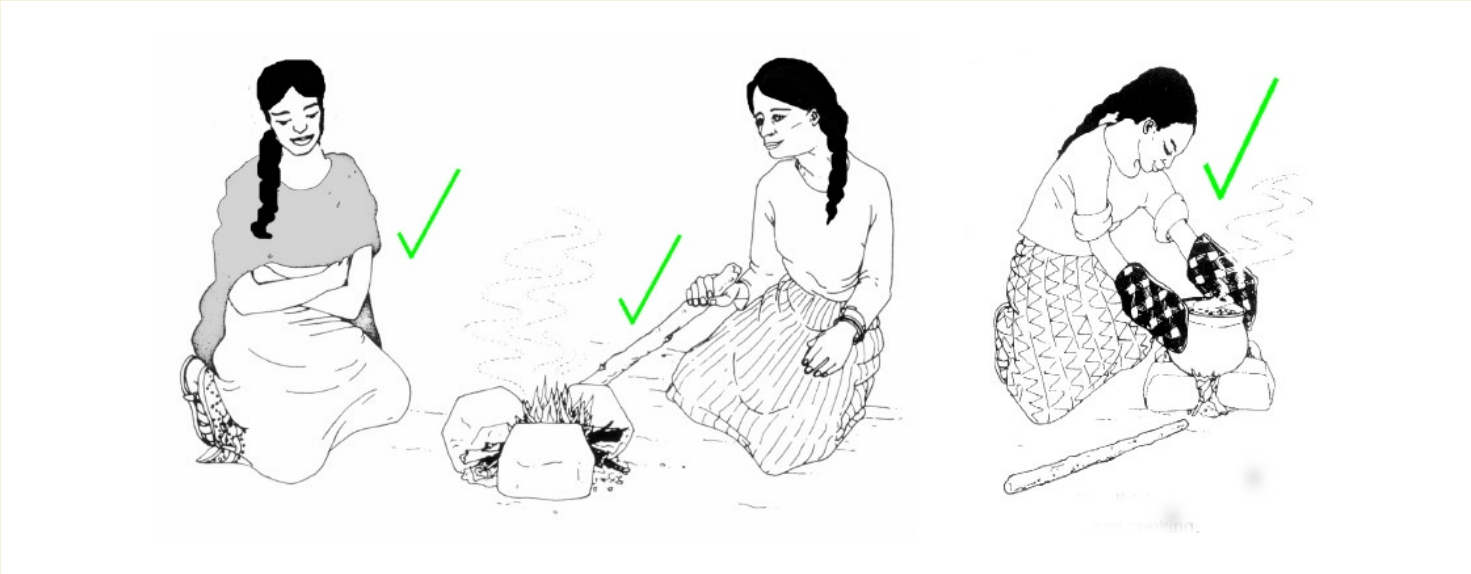
கைகள்

நெருப்பு

- தீயின் அருகில் கைகளை கொண்டு செல்லாதீர்

சமைக்கும் பொழுது

- கையுறை அல்லது கெட்டித்துணியைப் பயன்படுத்தவும்



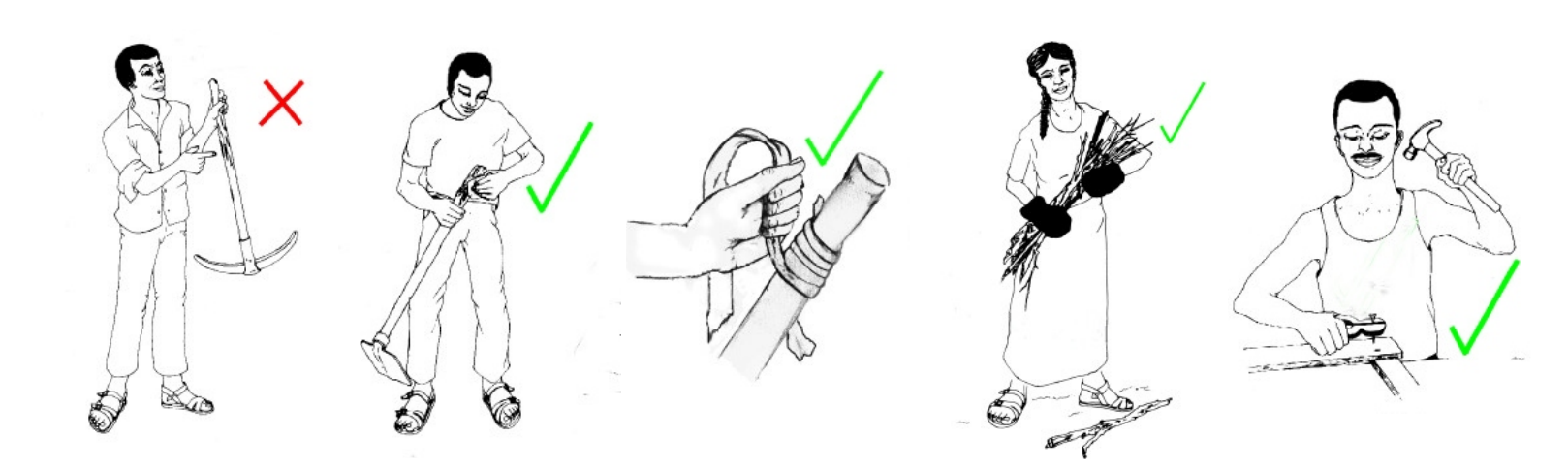
கைகள்

அபாயம்

- சொரசொரப்பான கைப்பிடி
- முட்கள்
- சுத்தியல்

செயல்

- கைப்பிடியை வழுவழுப்பாக்கவும்
- கைப்பிடியை துணியால் சுற்றவும்
- கையுறை அணியவும்
- ஆணிகளைக் கையாளும்பொழுது இடுக்கியைப் பயன்படுத்தவும்



உங்களது பலவீனமான கைகளை நீங்களே பாதுகாக்கலாம்

உங்களது கைகள் அல்லது விரல்கள் பலவீனமாக
அல்லது விறைப்பாக உள்ளதா?

ஆம் எனில்:

விறைப்பைக் குறைக்க பின்வரும் பக்கங்களில் உள்ள பயிற்சிகளை மேற்கொள்ளவும்.

உங்களது பலவீனமான கைகளை நீங்களே பாதுகாக்கலாம்

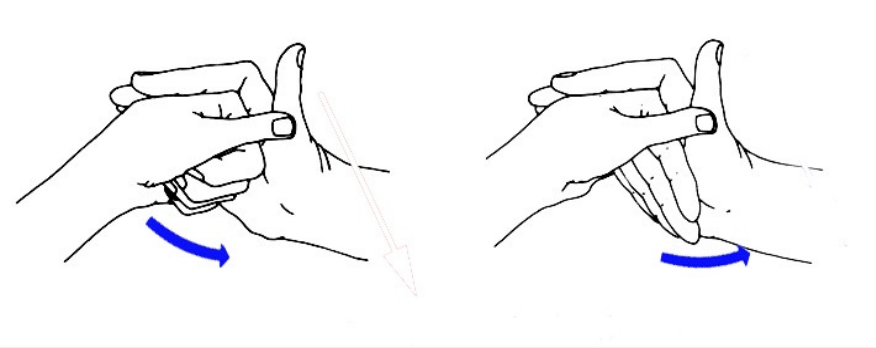
உங்களது கைகள் பலவீனமாக இருந்தால் மேலும் அது
பாதிப்படையாமல் தடுக்க...

- முறையான பயிற்சியை மேற்கொள்ளவும்.
- ஒரு சமயம் ஒருகைக்கு மட்டுமே பயிற்சி கொடுக்கவும்.

பலவீனமான கைகளுக்கு பயிற்சி - A

கைகள் பலவீனமாக இருப்பினும், பொருட்களை இறுக்கமாகப் பிடிக்க முடிந்தால்...

- கைகளில் எண்ணெயைத் தடவவும்.
- கையை மூடவும். [இறுக்கமாக இல்லாமல்]
- மூடிய கையை மற்றொரு கையில் வைக்கவும்.
- மூடிய கையை வலிமையோடு விரல்கள் நேராகும் வரை திறக்கவும்.
- விரல்களை நேராக வைத்து பத்து வரை எண்ணவும்.
- இது பழக்கமாகும் வரை அடிக்கடி செய்யவும்.

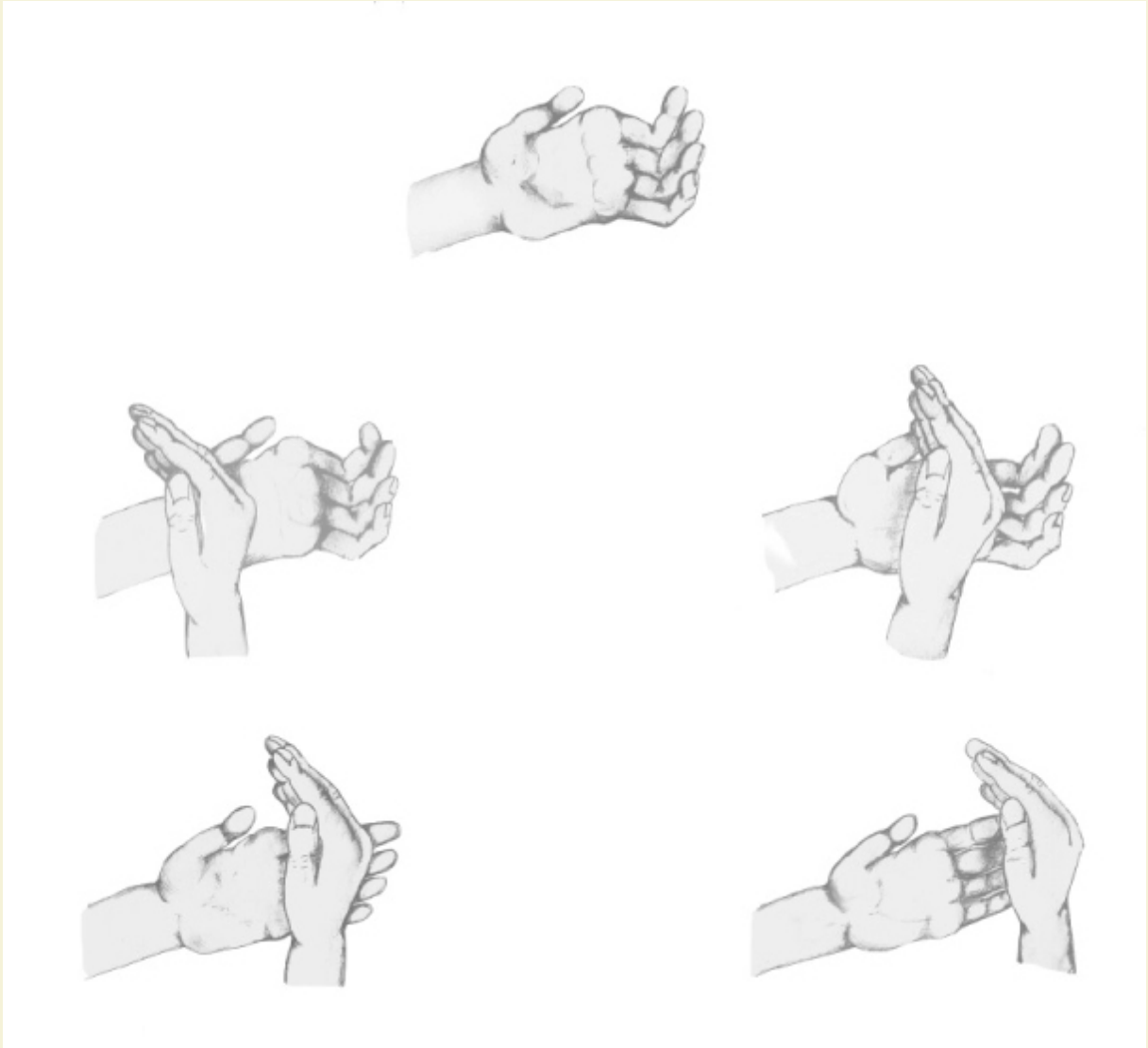


பலவீனமான கைகளுக்கு பயிற்சி - B

கைகள் பலவீனமாக இருந்து பொருட்களை இறுக்கமாகப் பிடிக்க இயலாவிட்டால்...

- கைகளில் எண்ணெய் தடவவும்.
- உட்காரவும்.
- பலவீனமான கை மேல்நோக்கி இருக்குமாறு தொடையின் மீது வைக்கவும்.
- மற்றொரு கையைக்கொண்டு பலவீனமான கையை மெதுவாகத் தள்ளவும். விரல்கள் நேராகும் வரை மெதுவாகத் தள்ளவும். [விளக்கப்படம் அடுத்த பக்கத்தில் பார்க்கவும்]
- விரல்கள் நேராக இருக்கும்பொழுது, பத்து வரை எண்ணவும்.
- இது பழக்கமாகும் வரை அடிக்கடி செய்யவும்.

பலவீனமான கைகளுக்கு பயிற்சி - B



சிறந்த அறிவுரை

தினமும் மூன்று முறை காலை, மாலை மற்றும் இரவு பயிற்சி செய்யவும்.

ஒவ்வொரு பயிற்சியையும் பத்து முறை செய்யவும்.

பாதங்கள்

பாதங்களில் உணர்ச்சிக் குறைபாடு உள்ளதா?
அல்லது
பாதங்களில் அடிக்கடி புண்கள் ஏற்படுகின்றதா?

ஆம் எனில்:

பாதங்களைப் பாதுகாக்க, மேலும் பாதிப்பு ஏற்படாமல் தடுக்க பாதங்களை நீங்கள் கவனிக்க வேண்டும்.

வரும் பக்கங்களில் பாதங்களைப் பாதுகாக்கச் சில வழிமுறைகள் உள்ளன.

உங்கள் பாதங்களை நல்ல நிலையில் வைக்கவும்.

உங்கள் பாதங்களில் உள்ள தோலில் வறட்சி மற்றும் வெடிப்பு ஏற்படலாம்.

- தினமும் காலையிலும், மாலையிலும் 20 நிமிடங்கள் உங்களது பாதங்களைத் தண்ணீரில் வைக்கவும்.
- பின்னர் கல் போன்ற சொரசொரப்பான பொருளைக்கொண்டு தோலின் கடினமான பகுதியை அகற்றவும்.
- ஏதாவது ஒரு எண்ணெயைத் தடவவும். 'வாசலின்' சிறந்தது.

குறிப்பாக உங்கள் கால்கள் உணர்ச்சியற்ற நிலையில் இருக்கும்பொழுது நீண்ட தூரம் நடந்தால், நீங்கள் அறியாமல் உங்கள் கால்களில் புண் ஏற்படலாம்.

- பாதங்களைப் பாதுகாக்க ஷு அல்லது காலணி உட்புறம் மிருதுவாகவும் வெளிப்புறம் கடினமாகவும் இருக்குமாறு அணியவும். இறுக்கமான காலணிகளை அணிய வேண்டாம். தினமும் காலணி பழுதடைந்துள்ளதா அல்லது கூர்மையான பொருட்கள் உள்ளே உள்ளதா என்பதைச் சரிபார்க்கவும்.
- பாதங்களில் புண் உள்ளதா என தினமும் பரிசோதிக்கவும்.

பாதங்கள்

காலணியைச் சரிபார்க்கவும்

- பழுதடைந்துள்ளதா
- கற்கள்
- கூர்மையான பொருட்கள்

பாதங்களைச் சோதிக்க

- புண்கள்
- சிவந்த நிறம்
- சூடு

பாதங்கள்

பாதங்களைச் சோதிக்க

- புண்கள்
- சிவந்த நிறம்
- சூடு

செயல்

- 20 நிமிடம் தண்ணீரில் வைக்கவும்
- கடினமான தோலை அகற்றவும்
- எண்ணெயைத் தடவவும்

பாதங்கள்

இவ்வாறு புண்கள் ஏற்படலாம்

- உங்கள் கை அல்லது பாதம் வலியை உணராமல் இருக்கலாம்.
- முள், ஆணி, கத்தி போன்ற கூர்மையான பொருட்களால் காயம் ஏற்பட்டால் வலியை உங்களால் உணர முடியாது.
- சூடான பொருட்கள் உங்கள் கைகள் அல்லது பாதங்களைச் சுட்டாலும் உங்களால் அதனை உணர முடியாது.
- நீங்கள் நடக்கும் பொழுது உங்கள் பாதங்கள் களைப்படைந்தாலும் அதனை நீங்கள் உணர முடியாது. மேலும் தொடர்ந்து நடந்தால், பாதங்களில் புண் ஏற்படலாம்.

பாதங்கள்

பாதங்கள் களைப்படையக் காரணங்கள்

- வேகமாக அல்லது நீண்ட தூரம் நடத்தல்
- கடினமான பாதையில் நடத்தல்
- காலணி அணியாமல் நடத்தல்
- மோசமான காலணி அணிந்து நடத்தல்

மோசமான காலணி என்றால்

- மிருதுவாக இல்லாமல் இருத்தல்
- மிகவும் இறுக்கமாக இருத்தல்
- பழுதடைந்து இருத்தல்

பாதங்கள்

உங்கள் புண்களை நீங்களே சரிப்படுத்தலாம்

- புண் இருந்தால் அப்பகுதிக்கு ஓய்வு கொடுக்கவும்.
  படுக்கும்பொழுது காலை உயர்த்தி வைக்கவும்.
- உங்களால் படுக்க இயலாவிட்டால், பணியை நிறுத்திவிட்டு
  அந்தக் காலில் நிற்காமல் அதை உயர்த்தி வைக்கவும்.
- கட்டாயம் நடக்க வேண்டுமெனில், கைத்தடியைப் பயன்படுத்தவும்.
  அடிக்கடி ஓய்வு கொடுத்து மெதுவாக நடக்கவும்.
- கட்டாயம் நடக்க வேண்டுமெனில், மிருதுவான காலணியை
  அணியவும்.

பாதங்கள்

- தினமும் பாதங்களை தண்ணீரில் வைத்து தோலின் கடினமான பகுதியை அகற்றி, எண்ணெயைத் தடவவும். அழுக்கு மற்றும் பூச்சிகளிலிருந்து புண்களைப் பாதுகாக்க சுத்தமான துணியைப் பாதங்களில் சுற்றவும். பயன்படுத்தும் துணியைத் துவைத்து, சூரிய ஒளியில் காயவைத்து மறுபடியும் பயன்படுத்தவும்.
- தினமும் காலை மற்றும் மாலையில் புண்களைப் பரிசோதிக்கவும்.
- புண்கள் பெரிதானாலோ, சீழ் ஏற்பட்டாலோ, புண்களைச் சுற்றியுள்ள தோல் சிவந்து வீங்கிக் காணப்பட்டாலோ சுகாதாரப் பணியாளரை அணுகவும்.
- புண்கள் சுத்தமாக ஆறி வந்தால் நீங்களே தொடர்ந்து கவனிக்கலாம்.

புண்கள்

ஓய்வு

அல்லது

அல்லது

புண்கள்

பரிசோதனை

மூடவும்

ஊறவைக்க

புண்களைப் பரிசோதிக்க

அபாயம்

- சீழ்
- பெரிதாகுதல்
- ஆழமாகுதல்
- வீங்குதல்
- துர்நாற்றம் வீசுதல்

மருத்துவப் பணியாளரை அணுகவும்.

புண் ஆறினால்

- சிறிதாகும்
- சுத்தமாக இருக்கும்
- வீக்கம் இருக்காது

நீங்களே கவனிக்கலாம்.

அல்லது

உங்கள் வாழ்வு உங்கள் பராமரிப்பில்

- உங்கள் குறைபாடுகளை உங்களால் தடுக்க முடியும் என்று மற்றவர்களுக்கு நிரூபியுங்கள்.
- உங்கள் வாழ்க்கை மற்றவர்களுக்கு நல்ல வழிகாட்டியாக உள்ளது என்று நிரூபியுங்கள்.
- மற்றவர்களுக்கு உதவும் வழிகளைக் கண்டறியுங்கள்.
- எல்லா நேரத்திலும் நீங்கள் சிறந்தவர் என்று நினைவில் கொள்ளுங்கள்.

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