Lead Talks

Lead Talk 1

Leprosy Plantar Ulcers (LPU) - Through the Perspective of Infected Wound Care

Aparna Srikantam

Blue Peter Health Research Centre, LEPRA Society, Hyderabad, Telangana, India.

Background

Plantar ulcers (~70% on the forefoot) are considered as a major cause of disability in leprosy patients. They develop due to mechanical shearing force on the skin owing to the lack of normal pain impulse. Secondary infections of these wounds, which if unattended, lead to cellulitis and osteomyelitis. These mif in adequately treated, may even need amputation to save the life of the patient. The general principles of wound management such as off loading the limb, good wound environment, proper hygiene and protection, still hold good in wound healing. Recurrence of infected wounds necessitates repeated visits to health care, which in turn impact expenditure for both the affected and the provider.

Field observations

It has been observed from our community care clinics that, 15-20% of leprosy affected persons still suffer from secondary wound infections and their subsequent complications, despite the regular hygiene and wound care practices. In most clinical settings in India, wound infections are treated on empirical antimicrobial regimen. No specific guidelines are available in the public health programme for specific antimicrobial treatment of infected wounds.

Way forward

Understanding the aetiology of secondary infections of leprosy plantar ulcers and their anti microbial resistance (AMR) patterns help in better interventions both at individual and programme level. As emergence of complicated AMR patterns for most pathogenic bacteria is a serious concern worldwide, here we propose to develop evidence based antibiotic use policy for the management of leprosy associated wounds.

Lead Talk 2

Pure or Primary Neuritic leprosy

Bhushan Kumar

Former Prof and HOD, Dermatology, Venerology and Leprology, PGIMER, Chandigarh, India.

Leprosy is primarily a disease of the nerves but subsequently involves the skin. Leprosy is a disease of great variability – sometimes with primarily skin involvement and sometimes more nerve involvement and related anesthesia and deformities. In about 4-8% of the cases the clinical presentation is exclusively with nerve involvement in the form of nerve deficit and / or nerve thickening without any cutaneous lesion, with negative skin smears and no other identifiable pathology. This is known as primary neuritic leprosy (PNL). The most common presentation is a mononeuritis (single nerve involvement) followed by mononeuritis multiplex (more than one nerve involved) and polyneuropathy (symmetrical nerve involvement). In addition to anesthesia, nerve thickening and neural pain are the predominant symptoms. In about 15-35% of the patients on close follow up skin lesions are known to develop. So close follow up is essential to revise the diagnosis if required. Histological alterations have been found in the anesthetic areas supplied by the affected nerve in about 15% cases.

The definite diagnosis of PNL is difficult. Nerve biopsy with the demonstration of AFB is the gold standard but is difficult and sometimes risky. The whole spectrum of leprosy is represented but mostly it is I, BT and BB. Nerve conduction studies show changes in about 40% of the cases who have silent neuropathy. The alterations precede nerve function impairment (NFI). High resolution ultrasonography (HRUS) and color Doppler (CD) evaluate the thickness and vascularity of the nerves better. Detection of thickness can help in selecting the site for biopsy and increased vascularity indicates reaction. Polymerase chain reaction (PCR) on nerve tissue can help in the diagnosis in AFB negative material. However, a high degree of clinical suspicion is essential.

Treatment is on the basis of classification – PB when only one nerve is involved and MB when two or more nerves are involved as in WHO regimen for skin lesions. A diagnosis of relapse is difficult but it can be suspected with the development of new signs and symptoms or new findings of AFBs in the nerve or overlying skin.

PNL is a definite clinical entity with subtle findings, which is diagnosed by clinical, histopathological, bacteriological, electrophysiological and on ultrasound. Early diagnosis and early institution of therapy is required for better functional recovery.

Development of cutaneous lesions in PNL confirms the hypothesis that leprosy is basically neural in inception and all other forms follow.

Lead Talk 3

Histopathological findings in 108 referred nerve biopsies from patients suspected with pure neural leprosy in the period 2008-2015

Vanaja Shetty

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Aim

In 4% to 8% of leprosy patients, peripheral nerve damage and functional impairment/s are the only clinical manifestations. This group, classified as "pure neural leprosy", poses a challenge in diagnosis, as there are a host of other neurological conditions in which there is damage to peripheral nerves. Non-invasive tests e.g., nerve conduction velocity and ultra-sonography are useful in determining the type, site and extent of nerve involvement but do not provide an etiology. Histopathological examination of an involved cutaneous nerve in such cases is vital.

Material and Methods

Nerve biopsies from 108 patients (M:F 3.3:1) suspected with pure neural leprosy were studied. The biopsies were obtained at teaching hospitals and were sent to FMR, along with a brief history. Selection of nerve for biopsy was based on either clinical and or electrophysiological involvement. The nerves biopsied included: sural=69, radial cutaneous=28 dorsal cutaneous branch of ulnar= 4 and superficial peroneal=7. One part of each nerve biopsy was processed for routine histopathology and the second part was fixed in Glutaraldehyde & OsO4 and embedded in araldite. Five micron thick paraffin-embedded sections were cut and stained with Fite-Faraco, and one micron-thick araldite-embedded sections stained with Toluidine Blue. These were studied for leprosy-specific cellular infiltrate, acid-fast bacilli and other fine structural changes.

Findings

Clinical: Predominantly sensory poly-neuropathy was recorded in 62, mono-neuropathy multiplex in 38 and mono-neuropathy in 8 cases.

Histopathology: Confirmatory evidence of leprosy was found in 60 (55.5%) nerves. Notably 32 (53.3%) among them scored positive for AFB. LLs lesions were seen in 3, BL in 25, BB in 11, BT in 21, and Indeterminate leprosy in 3 cases. In 5 (4.6%) cases nerves showed non-specific changes, the impression was that; the nerve selected for biopsy was incorrect.

In the remaining 43 cases (39.8%) nerves were grossly involved, but no conclusive evidence of leprosy was found.

All except 2 BL/LLs patients had a history of long-standing, silently progressing neuropathy. In 2 BL, 3 BB and 4 BT cases (total=9 i.e., 14.5%) there was histopathological evidence of Type1 Reaction and nerves were mildly tender clinically.

Conclusion

Histopathology in 39.8% of suspected pure neural cases did not conform with leprosy. These findings underscore the importance of histopathology in establishing a firm diagnosis and classification. However, the selection of nerve for biopsy is also important.

Keywords: Pure neural leprosy, Histopathology, Cutaneous nerve biopsy.

Lead Talk 4

Analysis of Grade-2 disability in new cases of leprosy to know the reasons for deformity in cases reported in Madhya Pradesh during 2016-17

Kamlakar Bhandarkar

State NLEP Consultant, Madhya Pradesh, India.

Leprosy is a public health problem due to the disability it causes. Efforts are being made, to bring down the grade-2 disability rate to less than one per lac population among newly detected cases. This will in turn reduce disability due to leprosy, bring down the stigma and discrimination and would enhance early reporting.

Aim & Objectives

1. To know the reasons of disabilities in newly detected cases.
2. To know the gaps in the delivery of Leprosy services, so that timely intervention could be planned to prevent disability in cases under treatment.

Materials and Methods

The data has been collected from the districts by interviewing the Leprosy affected having disability grade-2 during the year 2016-17, using a questionnaire conceptualized by Central Leprosy Division, Government of India, New Delhi.

Results

Out of the 319 new cases reported in 2016-17 with disability grade-2, 168 cases were interviewed and following results were observed on analysis of the filled questionnaire:

Migration was the most commonly observed condition and was seen in 28% of the patients with disabilities. Also 22% reported lack of awareness about the signs and symptoms of leprosy as a cause of late reporting. About 13% believed in faith healers or approached the private practitioners before reporting to Government centres, which resulted in delay in treatment, with MDT and disability.

Stigma still existed in the minds of the community not only in rural but also in urban locality (total 11%), which prevents the patient to report to the Government facilities. Due to implementation of administrative integration and availability of trained worker about 6% cases remained aloof from getting specialized services. Surprisingly, wages loss has made very little difference, similarly the contribution of incomplete treatment is hardly 5%.

Conclusion

- The migration of patient during treatment needs to be looked into with care.
- The system has to ensure follow up of patient under treatment, also after being released from treatment, The **Care after cure** needs to be reinstituted.

Key messages

- Nerve function Test (ST/ VMT) which has a pivotal role should be regularly brought in to practice.
- High risk cases should be line listed and be kept under special surveillance.

Lead Talk 5

Bio-social Aspects for Leprosy Control

RK Mutatkar

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Historically experienced issues, as loss of social identity, due to progressive affliction are branded as socio-economic consequences of a treatable disease. These also become causative factors in failure to check transmission. The bio-medical model is concerned about the quantitative parameters of prevalence and incidence so that leprosy no more remains a public health issue. However, community identity of leprosy by visible and functional disability, with the risk of growing transmission continues to be an operational issue for its control. Just like concern of bacterial load, so also the load of functional disability is becoming a humanistic liability.

Identification as a public health issue has implications of deployment of trained personnel with budgetary provisions. The concerns expressed relate to people's adherence to therapy, voluntary reporting, preventing dehabilitation and community based rehabilitation (CBR). When do people comply or take voluntary action to attain normality of health?

People have to live their lives as they inherit it in a given social order. They do take action according to the accessibility to avail treatment and counseling to minimize the duration of disorganized life. How to win the confidence of the people so as to develop their capabilities in identifying the early signs and symptoms of affliction and risk of progressive disabilities? The terms, case finding, case holding, voluntary reporting, CBR, are not medical terms, but having operational impact on public health. The road map has to develop a unified bio-social model of leprosy control.

Lead Talk 6

Thalidomide in ENL/Type II Reactions in Leprosy – A Decadal Experience

VV Pai

Bombay Leprosy Project, Sion-Chunabhatti, Mumbai, Maharashtra, India.

Aims & Objectives

Thalidomide belonging to thiomide group of drugs is extremely useful in management of ENL and type 2 lepra reactions. Clinical observations on efficacy of Thalidomide as primary drug and its role in maintenance therapy has been reported earlier in 2005 (Pai et al 2005) and in 2013 and 2016. We report our further experience

extending over a decade, in patients treated with thalidomide in ENL/type II reactions in leprosy.

Material & Methods

During the period from 2005 to 2017, 343 patients with ENL/type II reactions were registered who were referred by local medical colleges and practicing dermatologists, Government Civil Hospital to Referral Centre of Bombay Leprosy Project. Patients with recurrent/chronic reactions and those with steroid adverse effects/ steroid dependence were considered for treatment with Thalidomide. Patients were assessed clinically and bacteriologically and investigated with haemogram, chest radiograph, blood sugar etc. Informed consent and undertaking as per protocol was ensured. Enlist severity scoring was also done in some cases at intake and during follow up to record severity of reactions. Patients were of moderate to severe reactions. Thereafter thalidomide was administered in daily dose of 300 mg per day in divided doses and tapered and maintained over a period of 12 to 18 months.

Result

ENL reactions subsided in one week. No major adverse affects were seen except edema of feet in few cases. 82 (24%) patients had recurrence of reactions either during course of Thalidomide or on completion of treatment needing additional steroids or thalidomide. Most of these patients had BI more than 3+. ENL/type II reaction could be well controlled and hence patients weaned away from steroids and steroid dependency.

Conclusion

In our experience over a decade, it was thus observed that thalidomide as immunosuppressive and anti inflammatory drug is an excellent drug in controlling severe ENL/type II reactions especially in those with steroid adverse effects and steroid dependency. Hence quality of life of patients with ENL/type II reactions and pain could be improved greatly.

Lead Talk 7

Post Exposure Prophylaxis using Anti-leprosy Multidrug Regimens: Could be a Prospective Tool for Reduction of Stagnant New Case Detection Rate in Leprosy

HK Kar

HOD Dermatology, Paras Hospital Gurugram, Haryana, and former Dean, RML Hospital New Delhi, India.

Single dose rifampicin (SDR) regimen containing chemoprophylaxis trial provided close to 60% effectivity in preventing leprosy among contacts of new leprosy patients in the first two years. Post-exposure prophylaxis (PEP) with SDR has been adopted as national policy in several countries with a very low leprosy burden, such as Cuba (since 2002), Morocco (since 2014) and Samoa (since 2015). Furthermore, the leprosy post-exposure prophylaxis (LPEP) project is currently ongoing in eight countries: Tanzania, India, Nepal, Sri Lanka, Myanmar, Brazil, Cambodia and Indonesia.

The contacts with preclinical infection beyond the very early stages may not be cured with one single dose of rifampicin. This hypothesis is supported by the above-mentioned limited efficacy of SDR in household contacts in the COLEP trial, among whom SDR only prevented leprosy in less than 30% of contacts. It is postulated that the effectiveness of the SDR regimen can be increased if contacts of leprosy patients with pre-clinical disease would be treated with chemoprophylaxis using multidrug regimen and more frequently (more doses). A second reason for the limited efficacy of SDR is the short half-life of rifampicin in the blood (just over 3 hours) which can be improved by using two new bactericidal drugs with prolonged half-life or addition one more bactericidal drug along with rifampicin with prolonged half-life.

Using Multidrug chemoprophylaxis, particularly among close contacts could be able to further reduce the new case detection. The possible combination of drugs for PEP regimen will be discussed in detail in this presentation.

Lead Talk 8

Molecular Diagnosis of Mycobacterium leprae: Current Challenges in the Post Elimination Era

D.S. Chauhan

*Scientist-E, Department of Microbiology & Molecular biology, NJIL & OMD **(ICMR)** Agra, Uttar Pradesh, India.*

Leprosy is a chronic infectious disease caused by *Mycobacterium leprae*, which was discovered by G.H.A. Hansen in 1873, that mainly affects the skin and peripheral nerves. Differentiation of all mycobacteria at phenotypic level is not possible and serological techniques commercially available are inconclusive. In leprosy, early diagnosis is essential and molecular techniques have emerged as a support or complementary to the conventional methods available. Definitive identification of *M. leprae* in **clinical specimens** using molecular tools will depend largely on the standardization and other related factors such as the number of copies of the target, the product size and the reaction conditions. Using the new information about specific sequences of *M. leprae*, several gene probes and gene amplification systems for confirming diagnosis have been developed and this **has been exploited to design different types of gene probes developed by Katoch et al 1998, gene amplification methods as well as DNA fingerprinting techniques and membrane hybridization techniques.** Polymerase chain reaction (PCR)-based methods have been useful in confirming the diagnosis in paucibacillary leprosy (where few bacilli are present). Amplifying the gene encoding an 18 kDa antigenic protein by conventional PCR (cPCR), with a sensitivity limit of 100 bacilli/sample or of approximately 30 bacilli/sample by nested PCR (nPCR). Another method targets a gene that encodes the antigenic 36 kDa protein

known as proline-rich antigen, which can detect up to a single bacteria in the sample. Plikaytis and coworkers, developed a nPCR that amplifies a heat shock protein 65 kDa called groEL, which can detect 3 fg of *M. leprae*-DNA (single bacteria). An 85-antigen complex has also been used as a target, which encodes an 85 kDa antigen of three structurally related components. Amplification of specific regions of microsatellites, as well as an internal sequence of the high-affinity manganese transporter gene of the bacillus can also be useful for detecting *M. leprae*. The use of a repetitive sequence (RLEP) 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. *M. leprae* can be identified combining PCR of the 16S rDNA internal transcribed spacer (ITS) region with restriction digestion of the amplified product (restriction fragment length polymorphism (PCR-RFLP)) and its subsequent sequencing or by PCR-RFLP amplifying the hsp65 gene. *M. leprae* - specific quantitative reverse transcription PCR assays based on the expression levels of esxA, encoding the ESAT-6 protein and hsp18 could enable monitoring of *M. leprae* viability and amplification of a region belonging to the RNA ribosomal 16S which can detect up to 10 viable bacteria in the sample. However, results of any molecular methods associated with a serological test could improve the predictive value of these tests in leprosy diagnosis. Choosing the right target for an improvement in sensitivity is important. However, specificity of a repetitive sequence as a PCR target is an issue since long time.

Laboratory at National JALMA Institute for leprosy & other Mycobacterial Diseases at Agra, which has been pioneer in the validation of several indigenous PCR based methods and also developed several molecular tools for diagnosis of mycobacterial diseases under the leadership of Dr VM Katoch former DG, ICMR and Director of the Institute. The Institute has also been actively involved in the genomic based study of *M. leprae* and has developed a DNA chip contains genes which is related/associated with metabolic pathways and possibly virulence mechanisms. We review the available data and suggest to develop newer molecular tools for early diagnosis and early and rapid detection of leprosy.

Lead Talk 9

Update on Technologies for Detecting Drug Resistance in Leprosy

VM Katoch

NASI-ICMR Chair on Public Health Research at Rajasthan University of Health Sciences, Jaipur, Rajasthan, India

Use of multi-drug treatment (MDT) in leprosy in 1980s resulted in very efficient control of drug resistance. This was documented by several studies including those carried out in different centres in India. As there are limits to any intervention, occasional cases of drug resistance have been/ are being reported from different parts of world including India. A number of these

cases are due to earlier monotherapy and erratic management, however, quite a few of them are instances of primary resistance to drugs including rifampicin (RIF) and fluoroquinolones. These cases have raised the required alarm. At global level, surveillance systems are being put in place. WHO is playing necessary coordination role. India which had earlier started studying the problem in project mode is now embarking upon a well organized network of surveillance programme for detection of drug resistance in leprosy.

For detection of drug resistance in leprosy, technology limitations are also important. Mouse foot pad (MFP) assay, which has been used for this purpose for more than 40-50 years, is available only in selected centres in India. Further, it is applicable to very small proportion of bacillated cases, takes 9-12 months and has issues of cost effectiveness also. Because of these reasons, molecular assays have been explored as these have been shown to be applicable to low bacillated clinical specimens directly including slit smear specimens. Approaches include gene amplification of target regions (drug resistance determining regions) followed by hybridization with specific probes, PCR-SSCP, other mutation detection methods and sequencing. Real time PCR assays using various approaches have also been successfully used for this purpose. Users need to understand the relative usefulness of various approaches. While resistance can be detected fairly well in most of cases of RIF resistance, to a large extent, in case of Dapsone (DDS), and a section of quinolone resistance there are problems. Targets in cases of Clofazimine are ill understood, hence no molecular methods are available. These molecular tests have not been adequately investigated case of Minocycline and Clarithromycin in cases of leprosy. There is still need to generate more evidence to correlate many new mutations in cases of RIF and Fluoroquinolones with resistance phenotypes.

Management

While mono-resistance to any anti-leprosy drug may be manageable to a large extent by remaining two drugs in case of multibacillary regimen, in case of high degree of Dapsone resistance, we are left with Clofazimine alone in continuous mode whose effect might have been affected by partial resistance in some cases. In case of such mono-resistance, it will be important to add other drugs (like Clarithromycin/ Minocycline/ Ofloxacin or Moxifloxacin). While Minocycline and Moxifloxacin cannot be administered to young children, Clarithromycin also can not be given for more than six months. In case of Rifampicin resistance, WHO guidelines (1998/ 2012), regimen of 2 yrs (CLF+ OFLO + Mino or Clarithromycin for six months, followed by CLF + Mino or OFLO for 18 months) are considered fairly robust. For multidrug resistance (DDS + RIF), CLF + Ofloxacin/Moxifloxacin + Clarithromycin/Minocycline could be part of regimen. In case of Fluroquinoloneresistance, Minocycline becomes very important. Addition of six monthly immunotherapy by approved agents like MIP is highly desirable. It needs to be emphasized that proper documentation and periodic analysis of experiences of various regimens will be essential to progress rationally and in an evidence manner.

Lead Talk 10

Immunomodulation Agents in Effective Management of Leprosy: Is There a Need ?

Kiran Katoch

Former Director NJIL & OMD, (ICMR), Agra, Uttar Pradesh, India

Leprosy is a chronic infectious disease affecting mankind and exists even in the most ancient records of history. It is caused by *Mycobacterium leprae*, which was the first organism to be linked with the clinical disease, and continues to cause disease and disabilities. It does not kill the host, but, continues to live and survive in the human host. The disease clinically manifests in a very small number of exposed individuals, causes immunological reactions in a select few, more so when the host immunity is under stress and results in disabilities in selected few due to involvement of nerves. Due to some of these inherent peculiarities of both of the host as well as the infecting organism, the disease is still feared. Although, the disease has been limited/ eliminated to a large extent it has not been eradicated and continues to be a cause of disabilities and continued morbidity.

Under the electron microscope the organism appears to have a great variety of forms ranging from the short rod shaped structures which stain uniformly with Carbol Fuschin (live bacilli) to irregularly stained granular and degenerating bacilli.

The clinical manifestations in leprosy are probably due to i) bacterial progression in the host; ii) immunologic responses of the host and iii) neurologic damage due to either or both of the above. Chemotherapy with present day MDT as FDT is effective, but, in few patients the response is not optimum and is a matter of concern. This may also be responsible for the morbidity/ disabilities and also continued transmission of the disease.

Several immunomodulators have been tried/ used both for improving the chemotherapeutic response as well as for prophylaxis against leprosy. These range from drugs like Levamizole, Zinc, to Corticosteroids, Thalidomide, high doses of Clofazimine, Colchicines, Cyclosporine, Pentoxyphyline, Methotrexate etc. Related mycobacteria which share antigens with *M leprae* like BCG, BCG + killed *M lerae*, MIP, ICRC, *M vaccae*, *M habana* etc have also been used both as immunotherapeutic agents with MDT and also as immunoprophylactic agents for prevention of leprosy. Some of these agents have also been used to treat persisting reactions and also their addition with MDT to prevent their occurrence. Other non specific immunomodulators used include Transfer factor, various Cytokines and interleukins, Acetoacetylated *M leprae*, delipified cell wall components of *M leprae*, soluble protein component of cell wall of *M leprae* etc. Their respective uses will be discussed.

Felicitation by the local Organizing Committee of IAL, Digha

My Journey with Leprosy 58 Years and Counting.....

Gurmohan Singh

MD, FAMS, FRCP (Edin), BHU Varanasi, Uttar Pradesh, India.

The first clinical case of leprosy that I encountered was nearly 6 decades ago. It was a dreaded disease that destroyed lives, both literally and metaphorically. A diagnosis of leprosy was like sounding the death knell for someone.

I have witnessed the unfolding of the 'story of leprosy in India'. Being a clinician and with my long association with the National Control Programme voluntarily and later in National Leprosy Eradication Programme as a WHO-GOI District consultant of 5 districts in U.P. and Bihar in addition to being a Professor in this field. This gave me the opportunity of experiencing the changes in clinical presentation, therapy, rehabilitation and stigma attached to this disease.

Clinically, from an era where patients with all types of leprosy presented to OPDs to the current situation where, at least in my skin clinic where I see about 200 patients a dayl and which is well reflective of the field situation, I mainly encounter only the two ends of the spectrum. Of course not to mention the vast reduction in case load.

Therapy wise, I have treated patients with only Dapsone as a weapon to the time when MDT was introduced and then its various modifications through the years. See in the graph of leprosy public health programme has been a saga of hits and misses. Finally we are now in a situation where it has been made a horizontal programme.

Leprosy a Remembrance – Review Work Done with Dr H Srinivasan

Mohan Gupte

Pune, Maharashtra, India.

I am most grateful to the President and the award committee for conferring this award on me. I am honored and feel most humbled particularly when the award comes from our own association and by the committee chaired by Dr. S.K. Noordeen. I dedicate this award to the memory of Dr. H. Srinivasan my mentor and former Director of NJIL & OMD, Agra (ICMR).

I want to share with you some unpublished work that Dr. Srinivasan and myself put together in 1989 and 1990 before we launched the multi-arm leprosy vaccine trial in South India. This study

becomes particularly relevant today when we only talk of grade 2 disability targets in new patients of leprosy. Based on the study I conducted in Bobbili on 2608 leprosy patients and huge experience of Dr. Srinivasan, we established existence of quiet nerve paralysis (QNP) as the major problem in patients of leprosy. Through our fieldwork we documented development of simple methods for measuring the disabilities, both for sensory and motor components. We documented the need for standardized reproducible measurement techniques and demonstrated their feasibility in the field by the involvement of physiotherapy technicians. We also identified that QNP occurs in large number of patients without thickening of nerve trunks. We could quantify the extent of problem for disabilities with neuritis and by QNP. We emphasized the need to identify this problem and also the need for developing appropriate interventions.

Presently when the leprosy problem is substantially contained and the services are available only through integrated health pattern, importance of identifying this issue and the urgency to provide care for disabilities in leprosy patients cannot be ignored any longer *leprosy a remembrance – review work done with Dr H Srinivasan.*

Stigma of Leprosy

Kalyan Banerjee

Dermatologist, Asansol, West Bangal, India.

At this time of the year, when all India remembers with gratitude the life and the word of the great Gandhiji, and remembers also the plight of those who have been so unfortunate as to contract leprosy. We do well to recall the penetrating question that Mahatma asked himself and his followers: "Why should there be a stigma about leprosy any more than about any other illness?" Where the great bulk of his fellow-countrymen accepted without thinking the attitudes and prejudices about leprosy that seemed to be the common heritage of all times and all cultures, Gandhi probed and questioned the orthodoxies of his day and was not satisfied with what he found. Many innocent people, children as well as adults, were suffering not only from a disease of the body-serious enough, in all conscience, in many of its forms-but also, and often more importantly, from what society-ordinary decent men and women-thought of the disease and its victims. "Why should there be a stigma?" Why, indeed?

There might well be reasons advanced traditionally for the separation of leprosy from all other diseases, just as there was a whole host of beliefs associating leprosy with guilt and punishment and uncleanness, untouchability in its most extreme form. But Gandhi saw the suffering and distress engendered by this baseless connection, and to him it was wrong-it must be wrong. No right-minded citizen of emerging India could possibly treat a fellow human-being in such an inhuman way. From his early days in Durban, Gandhi tried to show that he at least, harboured no such discrimination. He deliberately sought out a group of suffering fold' in the advanced stages of leprosy, neglected and despised by all, and greeted them with that genuine friendship

that breaks down all barriers.

Then, in his message to the Wardha Leprosy Conference, in the organization of which Gandhi played a crucial role, the great Mahatma included this sentence: "I hope that we will not forget that disease of the mind is far more dangerous than physical illness." He realized that attitudes and ideas, prejudices and misconceptions, could play havoc with the peace of mind of the individual and with the weal and well-being of the community.

For many still, to-day, leprosy is somehow different, different from all the other diseases and affilictions to which human flesh is heir. To many, leprosy is more shameful than venereal disease, more infectious than tuberculosis an more resistant to treatment than cancer. And doctors in all branches of the profession are themselves shackled by attitudes that are completely devoid of any scientific basis.

Leprosy Eradication in India

Srikant Trpathy

Director in charge NIRT (ICMR) Chennai, India.

Leprosy is not merely medical relief; it is trans-forming of life into joy of dedication, personal ambition into selfless service (Mahatma Gandhi).

The National Leprosy Eradication Program (NLEP) of the Government of India has the following strategy for leprosy eradication:

1. Decentralized integrated leprosy services through General Health Care system
2. Early detection & complete treatment of new leprosy cases
3. Carrying out house hold contact survey in detection of Multibacillary (MB) & child cases
4. Early diagnosis & prompt MDT, through routine and special efforts
5. Involvement of Accredited Social Health Activists (ASHAs) in the detection & complete treatment of Leprosy cases for leprosy work
6. Strengthening of Disability Prevention & Medical Rehabilitation (DPMR) services
7. Information, Education & Communication (IEC) activities in the community to improve self reporting to Primary Health Centre (PHC) and reduction of stigma.
8. Intensive monitoring and supervision at Primary Health Centre/Community Health Centre.

Efficient monitoring of the program is crucial for the success of the NLEP. The quality of the service indicators for the monitoring in the program are:

1. Proportion of Defaulters
2. Number of relapses reported during the year
3. Proportion of New cases correctly diagnosed
4. Proportion of cases with new disabilities

Early detection of leprosy cases is helpful for the prevention of deformities and the control of leprosy. Molecular tests will be helpful where possible in making an early diagnosis.

Training of health care professionals for the detection and management of deformities due to leprosy is needed for proper care of the patients.

Chemoprophylaxis can prevent new cases arising in close contacts. For monitoring of the contact

screening program and the implementation of PEP, the following indicators are being monitored.

1. Total number of index cases
2. Total number of contacts screened
3. Total number of contacts diagnosed as leprosy
4. Total number of contacts found eligible for PEP
5. Total number of PEP administered as DORS

Monitoring for the emergence of drug resistance in the new leprosy cases detected in important for the success of the NLEP. Where drug resistant cases are detected, efforts must be put into place to detect them early and implement the correct treatment.

Public awareness, involvement of the private sector as well as the community and reduction of stigma are important for the success of the program. Media involvement and political support for the program are important for the program as well. Availability of a good vaccine would be very helpful in the prevention effort in NLEP.

Keynote Address on Eye in Leprosy

Leprosy and Threat to Sight

Manav Deep Singh

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A number of lesions on eyes or ocular adnexa which are related to Leprosy, have the potential to directly or indirectly affect the vision. High risk eyes, sight threatening lesions and potentially sight threatening lesions are various terms which have been used to describe these effects. These include lesions, which if not treated, can make a patient lose vision. 'Potentially Sight Threatening' (PST) lesions is probably the most scientific terminology in use today to indicate such lesions. Originally, it was used to indicate corneal hypo-esthesia, lagophthalmos, complicated cataract and uveitis. Dry eye has been another addition to this list. Although the nature of PST lesions is different in paucibacillary and multibacillary cases, overall incidence of PST lesions has been observed to be almost equal in both types of disease. Combination of loss of sensation by V N palsy, lagohthalmos by VII N palsy and dry eyes make it a most severe form of threat to cornea. Recurrent or chronic uveitis, more so during acute reactions is another serious threat to sight. Inflammation and poorly dilating pupil may make cataract surgery a difficult preposition. Problems related to steroid use form another set of difficulties. Therefore, constant vigil, care and treatment are essential to prevent blindness from them during the phase of treatment or years after release. Clear information and a strong referral system form the backbone of prevention of blindness among these patients as ophthalmo-logist/ plastic surgeons are not a part of the team providing primary care to leprosy patients. Whereas Cataract and Lagophthalmos need surgical correction, other lesions are managed by daily care or medical treatment from time to time basis. Therefore, it is best to have trained cataract and oculoplastic surgeon as a part of team of leprosy care.