LEPROSY IN INDIA: THE NATIONAL LEPROSY ERADICATION PROGRAMME (NLEP)

Leprosy has been regarded as one of the oldest scourges of mankind. 'Down through the ages communities took action in managing and controlling leprosy through partial isolation of an identified patient or through rejection or total isolation. While the drugs were not available, social workers provided shelter to leprosy patient rejected by the community, in leprosy colonies and provided a brotherhood of leprosy affected patients' (Mutatkar and Patankar, 1991).

I. Definition:

Leprosy is a chronic communicable disease mainly affecting the nerves with its manifestations on the skin.

According to Jopling and McDougall (1985), "Leprosy (Hansen's disease, HD; Hanseniasis) is a chronic disease caused by Mycobacterium leprae (M. leprae) infectious in some cases and affecting the peripheral nervous system, the skin and certain other tissues (Jopling and McDougall 1985:).

II. Magnitude of the Problem:

India shares about one fourth of the global estimated leprosy case load and over 60% of the registered cases (1993). There has been a steady increase in the number of cases through successive decades starting with 1.5 million in 1941 and reaching 4.0 million estimated cases in 1981. The main factor to account for this progressive rise is rapid increase in the
population, ii) better case detection activities and iii) greater community awareness leading to voluntary reporting.

About 15-20 percent of the patients are children. The proportion of multibacillary cases ranges from 10-20 percent in different regions and the deformity rate was approximately 5-15 percent. The prevalence exceeded 5 per thousand in 201 out of 455 districts in the country.
(Source: Background Material on the Annual Meeting of Voluntary Organizations involved in NLEP 1994: 10)

A comparative view of the distribution of the disease in the country (state-wise) is given in fig 2.

III. The Epidemiological Features:

1. MODE OF TRANSMISSION

The mode of transmission of leprosy is still unknown. It is widely believed that the most common mode of entry of leprosy bacilli into the body of the contact person is the inhalation of bacilli laden droplets of nasal secretions of the affected patient. The inhaled bacilli may enter the respiratory tract and then carried to sites suitable for their multiplication. M. leprae may also find its entry through the broken skin. In general as leprosy is only feebly infectious, close skin to skin contact is usually considered to be necessary for its transmission. However, in susceptible person even a casual or short contact may cause the disease. In most population, even after the leprosy bacilli have entered the tissues, 90-95 percent of individual do not contract the disease because of their specific immune responses or natural resistance to kill the invading organisms. Environmental factors such as overcrowding,
sanitary conditions, hygienic habits etc., favour the spread of leprosy.

2. WHO CONTRACTS LEPROSY

Leprosy knows no barrier, neither demographic, nor economic. It cuts across boundaries of nations, continents and climates. Leprosy occurs in all age groups. Children belong to a high risk group. The peak age of onset is between 10 - 20 years. It affects more males than females often in the ratio, 2:1. This could be attributed to social mobility which is greater in men than woman. This sex difference is greater in adults than children. Diet does not play any direct role however, persons with low immunity system is more susceptible leprosy.

3. INCUBATION PERIOD

The time lapse between entry of leprosy bacillus into the human body and the appearance of the disease or the incubation period is also not known precisely. It ranges from 3 months to 20 years and more, the average being 2-3 years.

4. SIGNS AND SYMPTOMS

Leprosy usually starts with a non-itching and non-painful patch or patches in the skin. These patches may appear on the visible or non-visible parts of the body. A leprosy patch differs from other skin patches or ailments like leucoderma, vitamin-D deficiency patches, scabbies, vitiligo with regards to the following:

- loss of sensation
- loss of hair growth
- loss of sweat
Some of the other signs and symptoms of leprosy are:
- Smooth, oily, shiny, reddish skin
- Thickening of earlobes, loss of eye-brows
- Enlargement and tenderness of the peripheral nerves associated with peripheral nerve damage such as paralysis, sensory loss of pseudomotor dysfunction.

Untreated leprosy can lead to:
- Claw hands (contractured fingers).
- Ulcers and wounds in feet and hands due to anesthetic condition
- Absorption of fingers and toes.
- Eyelids do not close and eyeballs are damaged resulting in blindness. (Lagopthalmus)
- Wrist and ankle drop due to nerve damage.

5. TYPES OF LEPROSY

From the infectivity point of view, there are basically two types of leprosy, namely:

- Non-infectious or paucibacillary or non-lepromatous (few bacilli present in 1 sq. mm of skin smear taken from the patient).
- Infectious or multibacillary or lepromatous: (many bacilli present in 1 sq. mm of skin smear).

One of the usual medical classification of leprosy refer to indeterminate, tuberculoid, borderline and lepromatous types of leprosy. More than 85% of the patients are non-infectious and do not spread infection. (See appendix for classification of Leprosy)
6. TREATMENT OF LEPROSY

Leprosy is a disease with socio-cultural and medical problems. "Besides the medical treatment the leprosy patients need mental, moral, social and emotional support and reassurance to maintain the homeostasis" (Krupp: 1991).

In ancient times, hydnocarpus oil (chaul moogra) had been in use in India and China, but with not much success. With the progress in various fields of research in medicine, pathology, immunology, molecular biology etc., the first break-through in chemotherapy was achieved in 1941, when Guy Faget used a disubstituted derivative of dapsone effectively in treating leprosy. It was first used in India in 1946 in oily suspension by Dr. Cochrane.

The World Health Organization, after the prolonged experiments and trial, recommended the use of combination of Dapsene, Rifampicin and Clofazimine, which came to be known as Multi-Drug Therapy (MDT) for the treatment of leprosy. In India MDT was first tried in 1981 in Wardha District with great success and has since been extended to all over the country in a phased manner, beginning with the hyper-endemic districts. At present, MDT has covered over 400 thousand leprosy patients extending over 75 districts.

Paucibacillary patients are treated with MDT for six months with two medicines: Dapsone and Rifampicin.

Multibacillary patients undergo MDT treatment for 24 months, with three medicines: Dapsone, Rifampicin and Clofazimine. On completion of treatment the patients are declared as "released from treatment" (RFT). They are kept under surveillance for 2 to 5 years, after which they are declared as "released from control" (RFC) if no relapses are observed during the period.
DEFORMITY OF LEPROSY

Fear and strong stigma associated with leprosy are due to the gross deformities and mutilations, generally regarded as essential features of the disease.

Deformities in leprosy indicate the neglect of the disease over a period of time. Deformities occur due to nerve damage resulting from the infection of peripheral nerves by the Mycobacterium leprae. The peripheral nerves consist of sensory, motor and autonomic nerve fibres, damage to which results in anaesthesia, muscle weakness or paralysis and lack of sweat and sebum, causing dry skin. Ulcers may develop due to injuries caused to anaesthetic parts of the body. Thus, injuries being painless are likely to be neglected leading to sepsis. This ultimately results in wasting of bones and muscles, particularly of palms and soles.

Deformities in leprosy are of two main types: primary and secondary. The primary deformities are directly caused by the tissue reaction in infection with Mycobacterium leprae, resulting in loss of eyebrows and eyelashes, facies bonina (lion face), flat nose, claw-hand, wrist and foot drop etc.

The secondary deformities occur as a result of damage to the anaesthetic parts of the body like ulcers, loss of toes and fingers, corneal ulcers etc. (See the Appendix for the Deformity Gradings).

IV. Control Activities before 1955:

Prior to the launching of the National Leprosy Control Programme (NLCP) in 1955, the anti-leprosy activities in the country were primarily clinic based and organized by Charitable Missions and Non-Governmental Organizations (NGOs). Leprosy Clinics were on an
average one clinic per 200,000 population. The figures varied from state to state. Co-ordination of leprosy control services on a rational basic was lacking.

V. National Leprosy Control Programme:

The Government of India launched a nationwide leprosy control programme in 1955 in the last year of the First Five Year Plan.

It was started with the primary objective of controlling the disease through mass domiciliary treatment with sulphones. It was centrally aided scheme with the thrust on rural areas of high and moderate endemicity. The NLCP was designed to operate as a vertical programme with lateral adjustments.

Initially, the programme did not have clearly defined goals and objectives for two almost two decades. From the beginning of 1976, the programme was made performance oriented and each state was given annual targets by the Government of India for new case detection, treatment and discharge.

The Dapsone monotherapy suffered both operational and technical limitations as it predominantly relied on long duration and self-administered therapy.

Following the recommendation of the Working Group on the eradication of leprosy in July 1981, under the chairmanship of Dr. M.S. Swaminathan, the goal to achieve leprosy eradication by the turn of the century was undertaken. The decision was taken in the wake of the advances in chemo therapy of leprosy and extended reach of mass-media.

The programme therefore came to be known as National Leprosy Eradication Programme (NLEP) in late 1982.
VI. The NLEP Strategy:

The present strategy of NLEP is based on "controlling the disease through reduction in the quantum of infection in the population and reduction in infective sources, thus breaking the chain of disease transmission." (Leprosy: Status Report on Voluntary Organisation and NLEP, 1987). Since the man is only known reservoir, the only available strategy could be the early detection of leprosy cases and their effective treatment.

Thus, programme strategy aims towards the following basic activities:

1. Survey and case detection.
2. Registration of cases for treatment.
3. Provision of continuous treatment with dapsone to all cases, as close to their homes as possible.
4. Introduction of MDT (Multi Drug Therapy) with rifampicin, clofazimine and dapsone in a phased manner to cover all endemic areas by 1995.
5. Education of patients, their families and community at large about leprosy.
6. Correction of deformities.

VII. Infrastructure of NLEP:

At district level, the District Medical Officer of Health looks after the leprosy work in addition to his other duties, in low endemic areas. On the other hand, District Leprosy Officers (DLO) or Zonal Leprosy officers (ZLO) have been appointed for each district in endemic areas for leprosy.

The leprosy services at the field level fan out from two types of units that operate at periphery:
i) The Leprosy Control Units (LCU)

ii) Urban Leprosy Centres (ULC)

These are situated at the rural and urban areas, respectively.

One LCU covers about 400 - 500 thousand population. These are manned by

- 1 medical officer (MO)
- 4 Non-Medical Supervisors (NMS)
- 20 Paramedical workers and other ancillary staff (known as Non-medical assistants - NMA in M.P.).

One ULC covers a population of 30-70 thousand, and are manned by a Medical Officer, under where supervision NMS functions. The Medical Officer is in charge of a dispensary or hospital to which the ULC is attached.

In areas with endemicity of less than 5 leprosy cases per 1000 population, another type of arrangement called Survey Education and Treatment (SET) centre exists to serve a population of about 25 thousand. It is attached to the Primary Health Centre at a dispensary or hospital located in the area. One para-medical worker (PMW) or Non-Medical Assistant (NMA) works at the SET Centre under the guidance of the Medical Officer of the Primary Health Centre. Temporary Hospitalization Wards (THW) have been provided for those in need of special care and a limited number of institutions have facilities for reconstructive surgery for the patients with deformities.

There are about 450 LCUs, 800 ULCs, 7000 SET centres, 250 THWS and 75 reconstructive surgery units in the country and about 190 District Leprosy Units covering the high endemic states. (Leprosy in India-A Statistical Compendium, 1989).
ORGANISATIONAL CHART OF NLEP

(See Table No. )

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National Leprosy Eradication Commission
National Leprosy Eradication Board
Leprosy Division, Dl. General Of Health Services.
Ministry of Health & Family Welfare
Directorates of Health Services of States/UTs.
Leprosy Bureaus in States/UTs.
District/Zonal Leprosy Office.

Survey Education Centre
& Treatment Centre
(20,25 thousand population)

Temporary Hospitalization Ward
(20 beds)

Urban Leprosy Centre
(5000 population)

Medical Officer
1

Non-Medical Supervisor/Para-Medical Worker
1

Paramedical Worker
4

Leprosy Control Unit
(45 thousand population)

Medical Officer
1

Non-Medical Supervisors
4

Para-Medical Workers
20

Health Educator & other staff
1

Central & Regional Leprosy Training & Research Institutes
Voluntary Organizations
Leprosy Training Centres for Reconstructive Surgery Units
INDIA
STATE WISE PREVALENCE OF LEPROSY
AS AT 1994

PREVALENCE RATE PER 10,000

- 10/10,000
- 20/10,000
- 20-30/10,000
- 30-50/10,000
- 50-100/10,000
- >100/10,000