



Leprosy: An Overview

(World Leprosy Day Guest Comment)

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The disease called leprosy, once considered a stigma for the society, is also known by the name of Hansen's disease after the scientist G. H. Armauer Hansen. The disease is a chronic bacterial infection caused by *Mycobacterium leprae*, discovered in 1873, by Hansen, and was indeed the first bacterium identified as causing disease in humans.¹

The disease was looked at as a ritual impurity, considering the infected people to be untrustworthy, unclean and morally corrupt. It was also considered to be highly contagious, which was just an untrue fear since the disease is not that contagious. Most common risk factors include low socio-economic status, poverty and close contact with the infected ones.

The most common way of diagnosing it is by detecting acid-fast strain of bacterium in the skin biopsy sample or detecting DNA via a PCR test. The treatment of the disease depends on the type of disease: paucibacillary and multibacillary. Treatment includes a multidrug therapy of 2-3 antibiotics namely clofazimine, dapsone, rifampicin etc. for a period of 12-24 months.²

How is leprosy transmitted?

Contrary to a popular belief of being highly contagious, the disease only spreads from human to human and exists more in the close contact with the cases and socio-economically backward groups. It is thought to occur through a cough or through nose secretions from an infected individual, i.e aerosol transmission.

Causes of the disease

As stated earlier, the infectious disease is known to be caused by an intracellular, aerobic, acid fast bacillus of *Mycobacterium* class, the *M. leprae* or *M. lepromatosis*. Two main types of the disease based on the number of bacteria have been understood, paucibacillary (five or fewer) and multibacillary (more than 5). They can be differentiated by the bacterial count and the

number of hypoaesthetic skin patches. The organism cannot be cultured in vitro. Earlier, it used to be cultured in vivo in nine banded armadillo or mice since it is known to be occurring naturally in them. The organism being unculturable in the laboratory, is difficult to be identified under the Koch's postulates.

Signs and symptoms

Leprosy is mainly a chronic granulomatous disease affecting peripheral nerves and mucosa of respiratory tract, mostly upper tract, skin lesions in form of patches etc. Presence of skin lesions like macules, papules, nodules along with thickened nerves further accompanied by paraesthesias and muscle weakness are the most common signs and symptoms. However, muscle weakness in absence of characteristic lesion and nerve thickness is not a reliable sign.³

Classification

Multiple classifications have been provided, however, the most followed is WHO classification and Ridley Jopling classification. Under the types of pauci and multibacillary, further classification into 5 types has been provided by Jopling, which includes, tuberculoid (TT), borderline tuberculoid (BT) under the paucibacillary group and borderline (BB), borderline lepromatous (BL) and lepromatous (LL) under multibacillary. Under WHO classification, an additional group of indeterminate (I) has also been identified. Of these, the tuberculoid (TT) has the best prognosis and the lepromatous (LL) has the worst.⁴

How is the disease treated?

Social stigma has been associated for much of history, which continues to be a barrier to self-reporting and early treatment. However, an early treatment is necessary for complete cure without any sequelae since the physical and neurological damage may be irreversible even if the disease is cured. The recommended treatment is a multidrug therapy (MDT) regime comprising of clofazimine, dapsone and rifampicin for a period

of 12 months for paucibacillary type and for 18- 24 months for multibacillary type. This MDT regime is highly effective if observed well and the chances of relapse are low. Further, the resistance to the combination therapy is also less.⁵

PREVENTION

Few studies suggest that the BCG vaccine used for tuberculosis also provides a variable protection against leprosy. However, no vaccine has yet been discovered for leprosy itself. In India, the Leprosy Act was enacted initially in 1898, however, was repealed only after the MDT became widely available. In 1983, the National Leprosy Elimination Programme also came into light. However, India still accounts for more than half of the global disease burden.

Despite the effective treatment and widespread awareness regarding the disease, the social stigma still prevails in endemic developing countries. Disbeliefs, religious connotations and lack of education continue to influence the social perceptions. Yet today, the disease accounts for untouchable status in many parts of poor countries. What is required of the society is a general widespread awareness keeping aside their connotations and beliefs, take a step forward for the help of

needy and walk in the direction of progression and not regression to make sure the stigma is restrained.

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