

## Tropical infectious disease – leprosy

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### Abstract

#### Introduction

Leprosy (Hansen's disease) is a chronic infectious disease caused by *Mycobacterium leprae* and *Mycobacterium lepromatosis*. It is divided into the lepromatous (*lepra lepromatosa tuberosa*) and tuberculoid form (*lepra tuberculoides*). Leprosy can affect occur at any age but the highest incidence is observed in the third decade of life. Currently, the largest endemic foci of leprosy are located in South-East Asia, South America and Central Africa. The highest incidence is reported in India, Brazil, Nepal, Mozambique and Angola. In several endemic countries, especially in India and Brazil, leprosy is still a threat to public health.

**Aim:** The aim of the paper is to acquaint the readers with and raise their awareness of public health risks connected with leprosy.

**Material and method:** The present review paper is based on publications and reports of the World Health Organization (WHO).

**Conclusions:** People should be aware of health threats associated with leprosy. We have to help the affected and at the same time protect ourselves, since in the times of globalization and worldwide human migrations leprosy can suddenly emerge close to where we live.

**Key words:** leprosy, human migration, poverty, health threat

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#### Introduction

Leprosy is an infectious disease caused by *Mycobacterium leprae*, also known as Hansen's coccus. The bacterium grows slowly, reproduces during 14 days and can stay latent for as long as 30 years [1, 2].

The source of infection is a person with the lepromatous form of leprosy; the disease is transmitted via droplets or secretions from ulcerations [2].

Leprosy has been spreading for centuries. The Hindu books from 1400 B.C. and Chinese ones dated 600-500 B.C. include descriptions of its characteristic symptoms such as: insensibility, white spots, foot ulcers, loss of eyebrows, blindness

etc. The spread of leprosy was connected with wars and migrations of troops and populations, and the infected ones were always treated as reprobates punished by God, driven away and abandoned by their families [3]. Isolation in their own environment is deeply experienced by the affected and often causes depression [4, 5].

#### Prevalence

According to the official data from 103 countries and territories, the global registered prevalence of leprosy at the end of the first quarter of 2014 was 180.464, whereas the number of new cases reported in 2013 was 215.557 (with the exception of Europe where the number was low) [6].

It is worth pointing out that the number of people suffering from chronic leprosy has decreased from the 5.2 million in the 1980's. The disease is more likely to infect people living in poverty. The majority of cases is reported in 16 countries, and over half of them in India. Over the past 20 years, 16 million leprosy patients have been cured [4].

### Classification

The clinical picture of leprosy is influenced by two factors: PB invasion and immune responses in patients, as well as a decrease in or lack of cell-mediated immunity [2].

The classification is as follows:

Paucibacillary leprosy – PB:

- indeterminate leprosy – IL
- tuberculoid leprosy-TT
- borderline tuberculoid leprosy- BT

Multibacillary leprosy – MB:

- borderline – BB
- borderline lepromatous – BL
- lepromatous – LL

Moreover, pure neuritic leprosy (PN) has been distinguished, which may be classified as either PB or MB [3, 7].

### Diagnosis

Leprosy is diagnosed based on identification of typical skin lesions with sensory loss as well as acid-fast bacilli in skin biopsy. Diagnosis is confirmed by detection of acid-fast bacilli in skin or mucous membrane biopsies, especially from the nose area, bioplates of lesions or scrapings or by determination of bacterial DNA using a polymerase chain reaction (PCR). In doubtful cases, fluorescence in situ hybridisation (FISH) using a molecular probe reacting with the bacillar genetic material can prove useful. Serological testing, on the other hand, is of lesser importance. Moreover, skin tests are used in some cases, which are generally positive in patients with tuberculoid leprosy; however, positive results

can also be observed in individuals from endemic territories [8].

### Treatment

Leprosy treatment by WHO includes three basic recommendations:

- early detection of infections,
- quick determination of leprosy type and introduction of an appropriate pharmacological regimen,
- proper rehabilitation, both somatic and psychic [5].

### Rehabilitation

People suffering from leprosy are deeply wounded, full of fears of deformities and discrimination as well as concerns that they could infect their family and friends. Rehabilitation involves a wide range of actions aimed at restoring patients, even those without deformities, to normal social life. As regards the mental state, patients are to regain self-esteem, economic independence as providers of their families, acceptance in family and society. In order to achieve this, it is essential to educate and inform the family and society that leprosy is curable and that it is a disease and not a result of a curse. Moreover, they should know that when the affected are isolated at their homes (separate beds, plates, spoons, cups), the risk of infection is slight since the secretion from trophic ulcers on feet is not contagious [2].

To avoid deformations, the affected patients should observe the following rules: insensitive hands – use the protective gloves (while using pots, cups, or cutlery); tobacco should not be pressed in the pipe using fingers and cigarettes should be smoked using a cigarette holder [2].

## Prevention

Early diagnosis of new cases and adequate management are essential for minimising the chances of infection, hence for leprosy prevention. Immunoprophylactic management should involve BCD vaccination of children from endemic regions, in particular from the families with reported cases of leprosy [3]. People from developed countries are not as susceptible to leprosy as those who are poor, malnourished and live below hygienic standards. Leprosy spreads because of poverty; therefore, it cannot be effectively prevented without appropriate anti-poverty measures [5].

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