Pathophysiology
Leprosy (Hansen’s Disease)
By
Prof. Rajiya Afzal Khan
LEPROSY
(HANSEN’S DISEASE)
INTRODUCTION

- Leprosy is a chronic infectious disease caused by *Mycobacterium leprae*.
- Leprosy is also known as Hansen’s disease.
- It was discovered by G.A. Hansen in Norway in 1873.
- It was the first bacterium to be identified as causing disease in humans.
- The first effective treatment became available in the 1940s.
Leprosy is a chronic infectious and communicable disease caused by *Mycobacterium leprae*. It mainly affects the skin, eyes, nose and peripheral nerves.
CAUSATIVE AGENT

- Leprosy caused by slow growing type of bacteria called *Mycobacterium leprae* an acid fast, rod Shaped bacillus.
- It is the first bacterium disease in humans.
M. Laprae enters the body (skin, nose, etc)

↓ Attacks

Peripheral nerves

↓

Bind to Schwann cells of axon

↓

Demyelination of nerves

↓

Loss of axonal conductance

↓

Deformity (Loss of pain, temperature, touch, sensation)
Effect of leprosy-

- Leprosy destroys neurons in these areas, taking feeling away from them.
- Leprosy also causes cartilage in those areas to get absorbed back into the body, causing fingers, toes, ears and noses to disappear.
- Leprosy also causes large bumps in the skin that do not feel pain and do not heal.
TYPES OF LEPROSY

- Lepromatous
- Tuberculoid
- Borderline
Lepromatous:
It is also known as Paucibacillary Leprosy (PB)

Damages:
- Respiration
- Eyes
- Skin
- **Tuberculoid:**
  - It is also known as Multibacillary Leprosy (MB)
  - Affects nerves in-
    - Fingers
    - Toes
    - Surrounding skin
Borderline (BL):- Has effects of both types Lepromatous & Tuberculoid.
INCUBATION PERIOD

- Mycobacterium leprae multiplies very slowly
- Symptoms can take as long as 20 years to appear
- Development of disease takes from months to years (1 year to 7 years)
DIAGNOSIS OF LEPROSY

- Hypopigmented or reddish skin lesion with definite loss of sensation
- Damage to the peripheral nerves, as demonstrated by loss of sensation
- Weakness of the muscles of hands, feet or face
- Positive skin smear
- Lepromin test
SIGNS

- Large bumps on the skin that do not feel pain
- Large bumps on the skin that do not heal for weeks or months
- Muscle weakness
- Disappearance of eyebrows or eyelashes
SYMPTOMS

- Mycobacterium leprae multiplies very slowly
- Symptoms can take as long as 20 years to appear
- Paucibacillary (PB) Leprosy symptoms are:– Well defined skin lesions that are numb
- Multibacillary (MB) Leprosy symptoms are:– Chronically stuffy nose and many skin lesions and nodules on both sides of the body

In primary disease state the body parts become numb or diseased, as a result of secondary infection can cause tissue loss, finger and toes become shortened and deformed as cartilage is absorbed in to body.
M. Leprae is probably spread through nasal/oral droplets, direct skin contact.

To avoid Contracting leprosy, avoid close contact with someone who has untreated leprosy.
Major goals of treatments are:-

- Early detection of patients
- Appropriate treatment
- Adequate care for the prevention of disabilities and rehabilitation
Leprosy is curable with multidrug therapy (MDT) Two or three antibiotics are used at the same time.

- Treatments include-
  - For tuberculoid leprosy- Daily dapsone and monthly rifampicin for 6 months is recommended.
  - For lepromatous leprosy-Dapsone and clofazimine along with monthly rifampicin for 12 months is recommended.
Following drug components are used in treatment of leprosy.

1) Sulfone - Dapsone (DDS)
2) Phenazine derivative – Clofazimine
3) Antitubercular drugs – Rifampicin, Ethionamide
4) Other antibiotics – Ofloxacin, Minocycline

- Multidrug therapy (MDT) is highly effective.
- Peoples are no longer infectious after taking first month dose.
- It is safe and easy to use and no resistance to the combined drug is seen.
THANK YOU

By

Prof. Rajiya Afzal Khan

H.S.B.P.V.T’S, GOI, COP, Kashti

Email- khanrajiya1591@gmail.com