Mycobacterium leprae (OLD VERSION)

Leprosy, also called Hansen’s disease, is a disease caused by Mycobacterium leprae and mainly affects skin and nerves. M. leprae is transmitted through aerosols, taken up in the body by alveolar macrophages, and disseminates hematogenously. However, M. leprae can only replicate in cool temperatures leaving the cool tissues of skin and extremities vulnerable. M. leprae causes two extremely different patterns of disease depending on the patient’s immune response. The less severe form is called tuberculoid leprosy. Patients present with dry scaly lesions on the skin that lack sensation. Because of an adequate TH1 response with release of IL-2 and IFN – gamma, the bacilli is relatively contained. Parallel to tuberculosis, this cell-mediated immunity can be reflected by delayed type hypersensitivity reaction to a dermal injection of bacterial extract called lepromin. Tuberculoid leprosy can be treated with dapsone and rifampin. The 2nd form of disease is called lepromatous leprosy and is characterized by a weak TH2 response with an inability to control the bacteria. Patients present with symmetric skin thickening and nodules on the face called leonine facies. There is a widespread invasion of mycobacteria into Schwann cells causing damage to the peripheral nervous system. Treatment for this form includes dapsone and rifampin with the addition of clofazimine.



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Aerobic
Aerobic Outfit
Mycobacterium leprae is an aerobic bacteria, which can only survive and flourish in an oxygenated environment.

Acid Fast
Acidic-lemon Running Fast
The mycolic acid in the cell wall makes mycobacterium acid fast, which means they will retain stains despite wash with acid.

Likes Cool Temperature
Ice blocks
This bacteria proliferates best in cool temperatures ranging from 32 to 34 degrees C. Therefore, the bacteria affects mostly cooler tissues including the skin and extremities.

Tuberculoid leprosy
Tube Leopard
This is the less severe form of leprosy seen in patients with adequate TH1 response. Patients present with dry scaly lesions that lack sensation.

Granulomatous response
Granny Llama
Because the TH1 response is adequate in tuberculoid leprosy with release of Il-2 and IFN, there is a granulomatous inflammation in response to the bacilli.

Positive Lepromin Skin Test
Positive skin suit
In tuberculoid leprosy, patients will respond with a positive lepromin skin test in response to a dermal injection of bacterial extract called lepromin, parallel to tuberculosis.

Dapsone
Diaper-sun
A drug used in the treatment of leprosy. It can also be used as second-line treatment for prophylaxis against pneumocystis pneumonia. Long term oral dapsone use can be associated with hemolysis and methemoglobinemia.

Rifampin
Ref Amp
Drug used in treatment of leprosy and tuberculosis.

Lepromatous leprosy
Leper Leopard
Lepromatous leprosy is the more severe form of leprosy that occurs in the immunocompromised.

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Weak Immune System

Weak leopard

Patients with lepromatous leprosy have weakened immune response with poor TH1 response.

Leonine facies

Lion face

Characteristic facial appearance with persons with lepromatous leprosy where the face resembles that of a lion with loss of eyebrows, nasal collapse and lumpy earlobes.

Negative Lepromin Skin Test

Negative skin suit

Patients with lepromatous leprosy will have negative lepromin skin test due to inadequate immune response.

Clofazimine

Clover fez

Clofazimine can be added to dapsone and rifampin for treatment for lepromatous leprosy.

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