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LEPROSY *

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Leprosy is a chronic disease, caused by *Mycobacterium leprae*, that infects only human beings, and which transmission occurs only from a person to another, mostly by germs eliminated by nasal mucosa. It is characterized by clinical, neurological and dermatological symptoms, which generally cause, after a long period of evolution deformities and mutilations. It's endemic, not only being found in rare groupments of humans without contact with civilized people.

The *Mycobacterium leprae* was discovered in 1874, by Armauer Hansen, with the method of Ziehl-Neelsen, where the bacillus presents red coloring (solid bacillus), when viable,in shape of bastonetes, isolated or grouped in globes. They might be discountinually colored (bacillus granulosis) and interpreted as unviable, (without infectivity).

Hansen's bacillus eliminated by nasal secretions and from the orofaringe of infected patients, enters into a healthy person's body probably by the continuity solutions of nasal mucosa or of the skin. It's estimate that when an infected patient speaks, he can eliminate nearly 180.000 bacillus in 10 (ten) minutes). The bacillus reproduces in every 20 days. Leprosy is passed on by human contact and the major risk is living in close contact with an infected patient. The most intimate (i. e. skin-to-skin) and "prolonged" the contact is, the more is the possibility of infection. In the familiar focus, the risk of infection is 3:1. In accidental contacts, which are those with no close contact, generally, from 2% to 5% become sick. The risk of infection varies according to the prevalence of the patients. In only 50% of new cases, the epidemiological links can be found. As to the other 50%, the human contact is not found.

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Hansen's bacillus can survive out of the human organism about 9 days. The incubation period of leprosy varies, generally, from 3 to 5 years, according to the degree of the exposure and the resistance of the individual.

The majority of the population is resistant to the infection of *M. leprae*. The resistance could be estimated by Mitsuda or the leprominica reaction, which consists in the intra-dermical infection of a suspension of the "dead" bacillus. When positive, it indicates resistance to the infection. The positiviness of the reation of Mitsuda grows along with the age and reaches a percentage of 70 to 90 in adult population. This reaction is of slow reading, about 4 weeks.

CLINICAL FORMS

The clinical aspects are related to the clinical forms of infection, which are related to the immunological resistance. This is fundamentally evidenced by the Mitsuda reaction. At the beginning, there might occur a subclinical infection or clinical signs that characterize the so-called indeterminated form. Occurring immunological resistance, the manifestations can advance to the resistant form, not contagious, denominated tuberculoid form. In the other polor "type", with resistance not happening, the disease develops a severe form called Lepromatous leprosy. Between the two stable extremes, there is an intermediate group denominated dimorphous or borderline, with sub-groups of transition known as dimorphous lepromatous and dimorphous tuberculoid. These forms which clinical lesions will be explained subsequently, show the following characteristics:

1. Indeterminate group (1):
   Mitsuda reaction: negative, doubtfully or weakly positive;
   Histopathology: banal round cell infiltration on dermes with rares bacillus. Bacterioscopy in the lesions, negative or with rare bacillus.

2. Tuberculoid form:
   Positive Mitsuda reaction;
   Histopathology: epithelioid cells with Langhns' giant cells. Granulomas with no bacillus. Negative bacterioscopy.

3. Lepromatous form (V or L):
   Mitsuda reaction: negative;
   Histopathology: diffuse infiltrate of foamy macrophages cells with numerous bacillus.
   Bacterioscopy: positive.

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4. Dimorphous group (D) or borderline (B):
   Mitsuda reaction: negative or weakly positive.
   Histopathology: structure of lepromatous and tuberculoid forms.
   Bacterioscopy: positive.
5. The sub-groups dimorphous - tuberculoid (DT) and dimorphous - lepromatous (DV): The forms suggest an evolutive tendency.

NERVES INVOLVEMENT IN LEPROSY

In most case, before cutaneous symptoms show up in the various forms of leprosy, nerve damage occurs. They are more premature in the tuberculoid form, acting upon the periferic nervous system. At the beginning, some patients complain of local hiperesthesis, then hypoesthesia and finally, anesthesis. The first alteration occurs in the termic sensitivity, then in the sensibility to pain and finally in the touch. The nerves enlarge and increase sensitivity, becoming painful during palpation, giving the sensation of electric shocks. The nerves commonly involved are: the Great-auricular, the ulnar,and the common peroneal nerves.

CUTANEOUS LESIONS OF LEPROSY

They are macules and plane, or uniformily infiltrated, circumscribed or difuse, or not uniformily infiltrated and with small areas of more advanced infiltration (nodules and plaques). The erythema and edema compose the lesions. The purple colored composes the reactional lesions, specially in their evolutional phases.

Generally, the macules lesions indicate leprosy in its initial phase; the circumscribed lesions indicate tuberculoid leprosy; the difuse represents the lepromatous one; the presence of circumscribed and difuse lesions indicates the dimorphous leprosy. The erythema, edema and the purple colour are part of the "reactional" manifestations mainly, if associated with general symptoms.

LABORATORY DIAGNOSIS

01. Bacterioscopy

It is essential in any suspicion of leprosy. The presence of bacillus is diagnoses of the lepromatous leprosy form.

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02. Histopathologic Exam

The presence of the virchow cell, loaded with the *M. leprae* in a compact arrangement, defines the lepromatous type. The presence of the tuberculoid structure with nervous alterations is characteristic of the tuberculoid type.

The existence of a simple inflamatory reaction and alteration in the nerves indicates the indeterminated type.

The presence of epithelioid cells and virchow cells, speaks in favor of the dimorphous group. Oversee the presence of nerve alterations and the demonstration of bacillus.

THERAPY OF LEPROSY

01. DDS: diamino-diphenyl sulfone: orally given, is the drug of choice in the treatment of leprosy. Dose: 100mg/day. It should be given continually in the lepromatous an dimorphous forms. It is well tolerated. Hemolytic anemia/leucopenia are the most common complications of the terapy. Whenever the hemoglobyn reaches 9.0 mg/100 ml and the hematocit falls to 32-34% the drug should be discotinued. The anemia is usually an early sign and appears before the fourth month of therapy. It should be controled each 15 days in the beginning. The most important complication is the methemoglobinemia. The main sign is cyanose and the drug should be abandoned imediately. Thw WHO recommend the combined therapy in the beginning, using Rifampin or Lampren and DDS, because resistance to DDS may appear with the continued use of the drug.

02. Rifampin: It is a bactericide and it should be prescribed in doses of 10 mg/kg/day, during 3 months. It is prescribed in association with DDS, that is continued alone after the first three months. The sides effects of Rifampin are rare. Hepatitis, cutaneous eruption and trombocitopenia may occur.

03. Lampren: It may be used in association with DDS in place of Rifampin. The dose is 1-2 mg/kg/day and it is used during 3 to 6 months. It is bacteriostatic, has the advantage of anti-inflamatory effects and prevents reactions during the therapy. Its major side effect is the brown-redish color in the patients skin.

THERAPY OF LEPROSY

Classic therapy

Tuberculoid form:

a) DDS – 100mg/day.

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Lepromatous and Dimorphous forms:

a) Rifampin – 600mg/day during 5 years
b) DDS – 100mg/day.

In tuberculoid form the therapy varies from 3 to 5 years; in lepromatous and dimorphous forms it is unpredictable.

Multidrugs therapy (Recommended by W. H. O.)

Tuberculoid form:

a) Rifampin – 600mg/month (every last day of the month) – under supervision.
b) DDS – 100mg/day – self administered.

The duration of the treatment is of 6 months, with annual revision during 2 years.

Lepromatous and Dimorphous forms:

a) Rifampin – 600mg/month (every last day of the month) under supervision.
b) Lampren – 300mg/month (every last day of the month) under supervision.
c) Lampren – 50mg/day – self administered.
d) DDS – 100mg/day – self administered.

The duration of the treatment is of 24 months with annual revision during 5 years.

THERAPY OF THE LEPROSY'S REACTION

01. Reaction "type I" (without erythema nodosum)

a) Mild: Begin with prednisona - 40 mg/day during 15 days and decrease 5 mg each 15 days during 2 months and than decrease 10 mg each 30 days during 4 months.
b) Severe form: (needs hospitalization). Begin with 60 mg of Prednisone decrease 10 mg each 15 days during 2 months, and than decrease 5 mg each 30 days during 5 months.

02. Reaction "type II" (with erythema nodosum)

a) Slight - same scheme to type 1 slight, and Thalidomide - 100 mg/day, decreasing weekly.

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Severe (needs hospitalization). Same scheme to type I severe and Thalidomide 400 mg/day during 7 days, decreasing 100 mg each 7 days during 4 weeks and than 25 mg/week during 3 weeks and finally 50 mg in alternate days, until the disappearance of the reaction.

Thalidomide: If possible, should not be given to fertile female patients.