

Classify and manage reactions before, during, and after leprosy treatment

## What are leprosy reactions?

Leprosy reactions involve a flare-up of inflammation in the body caused by complex immunological processes, linked to the remains of dead bacilli in the tissues. Reactions may occur before, during, or after treatment. They do not indicate a failure to control the leprosy infection. Normal antibiotic treatment is not affected, and completed treatment does not need to be restarted if a reaction occurs. Reactions occur in many people with leprosy, perhaps up to 50% of cases in some places, especially in patients with the multibacillary disease. Reactions may occur with obvious symptoms, such as red, swollen skin lesions, pain, muscle weakness, or sensory loss, but may also start insidiously, without any clear symptoms.

## What problems can occur as a result of a reaction?

Leprosy reactions mainly affect the skin and nerves, but can also affect other organs, such as the eyes. There are two different types of reactions, which affect the body differently.

**Type 1 reactions** involve inflammation in the tissues where there are the remains of dead bacilli, and thus mainly affect the skin and nerves. Nerve damage as a result of a Type 1 reaction is the main cause of the devastating disability and consequent stigma suffered by many people who develop leprosy. Clinical skill and experience are required to assess the degree of nerve damage by a reaction.

In **Type 2 reactions** the inflammation is linked to more soluble elements that circulate in the bloodstream, causing a more general illness with fever and body pain. This is distressing for patients in severe cases. Although leprosy skin lesions do not become inflamed, other inflammatory nodules appear on otherwise normal skin.

## How are reactions managed?

**Anti-inflammatory drugs:** The treatment of reactions involves trying to control the symptoms related to inflammation, although all reactions eventually settle by themselves. If the reaction involves only the skin, mild anti-inflammatory drugs can be used, such as ibuprofen, to control any pain or discomfort, although it may be needed for some weeks. However, nerve function should be carefully monitored during the treatment of a mild reaction, since patients are at high risk of nerve damage.

**Steroids:** Steroids, such as prednisolone, are powerful anti-inflammatory drugs and they are needed when the nerves are involved. The normal course of prednisolone starts with a high dose of 40mg daily, which is then tapered down over 20 weeks. The goal is to restore any lost nerve function and thus prevent permanent disability. Careful treatment of early nerve damage with steroids can result in a good recovery in most cases. If nerve damage has been present for more than 6 months, treatment with steroids is unlikely to be effective, which is why regular monitoring of nerve function is so important, in order to begin treatment as soon as any sign of a reaction is noted.

**Thalidomide:** Type 2 reactions cause more general malaise. Mild cases can be treated with ibuprofen, but more severe cases require thalidomide as the drug of choice, if available. Because of its well-known teratogenic effects, thalidomide is not available in some countries – in these countries, steroids and clofazimine are used to calm the reaction, but symptoms are difficult to control fully with these drugs.

**Training required:** Training and experience are required for health workers to do the regular nerve function assessments that are needed to identify nerve damage early and monitor progress once treatment with steroids has been started. As leprosy becomes rare in many settings, these skills are in short supply. It should also be noted that the drugs used to treat reactions have potentially very serious side effects, requiring great care from the health workers involved.