Drug Therapy

Version of 2016

6. Cyclophosphamide

6.1 Description

Cyclophosphamide is an immunosuppressive medication that reduces inflammation and suppresses the immune system. It works by interfering with the multiplication of cells, altering the synthesis of DNA and therefore it is particularly active on cells such as blood cells, hair and intestinal lining cells that proliferate very actively (cells need to make new DNA to reproduce). White blood cells, known as lymphocytes, are mostly affected by cyclophosphamide and their change in function and in number explains the suppression of the immune response. Cyclophosphamide has been introduced in therapy to treat certain forms of cancer. In rheumatologic diseases, where it is used in intermittent therapy, it has fewer side effects than in cancer patients.

6.2 Dosage/modes of administration

Cyclophosphamide is administered orally (1-2 mg per kg per day) or more frequently intravenously (usually monthly pulses of 0.5–1.0 g per square meter for 6 months and then 2 pulses every 3 months or, alternatively, pulses of 0.5g per square meter every 2 weeks for a total of 6 infusions).

6.3 Side effects

Cyclophosphamide is a drug that greatly reduces immunity and has several side effects that need close laboratory monitoring. The most common are nausea and vomiting. Reversible thinning of the hair does

occur.
Excessive reduction in the number of circulating white blood cells or platelets may occur and may need dose adjustments or temporary withdrawal of the drug.
Bladder alterations (blood in urine) may occur but are much more common in daily oral treatment than in monthly vein injections. Drinking plenty of water helps to avoid this problem. After vein injection, large volumes of fluids are usually given to wash out cyclophosphamide from the body. Long-term treatments run the risk of fertility impairment and increased cancer frequency; the risk of these complications depends on the cumulative dose of the drug taken by the patient over years.
Cyclophosphamide reduces the immune defences and therefore increases the risk of infections, particularly if given in association with other agents that interfere with immunity such as high dose corticosteroids.

6.4 Main paediatric rheumatic diseases indications

Juvenile systemic lupus erythematosus.
Some systemic vasculitis.