



CYTOTOXIC/IMMUNO-SUPPRESSIVE DRUGS

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Sometimes severe skin disease damages internal organs, ruining the enjoyment of life or risking serious infection. These problems usually require strong medication for a long time. Often a choice is made between the certain damage of a **steroid** drug, such as prednisone, and the possible damage of an immunosuppressive or cytotoxic drug. Although these drugs can have serious side effects, they can be of great value in treatment. They can help to prolong life, preserve function, reduce symptoms, and sometimes may serve to put the disease into remission.

Immunosuppressive and cytotoxic drugs are used for two major reasons. First, they are potent drugs that help to reduce disease activity in skin or internal organs. Second, they may reduce or sometimes eliminate the need for **steroids** (cortisone derivatives such as prednisone). Steroids used alone to treat major involvement must sometimes be given in high doses. This increases the risk of both short-term and long-term side effects, which may sometimes be worse than the disease itself.

Immunosuppressive drugs can be used either in addition to, or instead of, steroids to lower the amount of steroid needed and often spare the patient the undesirable side effects of steroid therapy.

How Do They Work?

Cells in the body divide and grow at varying rates. Examples of rapidly dividing cells include the antibody producing cells of the immune system, blood cells, hair cells, gonadal cells and malignant cells. Cytotoxic (cyto=cell, toxic=damage) drugs work by targeting and damaging cells that grow at a rapid rate. In autoimmune diseases and vasculitis the immune system is hyperactive and produces autoantibodies at a rapid rate of growth. Cytotoxic medicines have their greatest effect against rapidly dividing cells and, therefore, can be beneficial by suppressing the cells involved in the hyperactive immune response. The effect is a reduction in disease activity. There are risks associated with the use of cytotoxic drugs. The immune system may be suppressed too much and cause an increased susceptibility to infections such as shingles and pneumonia. The bone marrow may be suppressed and result in reductions in red blood cells, white blood cells and platelets. Suppression of hair cell growth may lead to a net loss of hair. The cytotoxic effects on gonadal cells may lead to sterility. Drugs to reverse the toxic effects on the blood and immune system can be given if needed.

Cytoxan

Cytoxan may cause many side effects, but it is well tolerated by most patients. It may cause an upset stomach and its use may cause the cell count to decrease. Blood tests to determine the white blood cell, platelet and red blood cell count should be taken each month in patients receiving Cytoxan. If the blood count is seriously decreased, the dosage is adjusted and the blood counts will generally return toward normal. Patients receiving treatment with Cytoxan have an increased risk of developing malignancies including leukemia, bladder cancer and other tumors. Cytoxan may also cause temporary or permanent sterility in both women and men, preventing them from having children. It may also cause damage to a developing fetus if a woman gets pregnant unintentionally while being treated with the drug. Use of Cytoxan may cause bleeding from the bladder, but this usually can be prevented by drinking large amounts of water. Cytoxan also predisposes a patient to develop shingles, which is a painful, blistering skin condition. It can cause hair loss. Like Imuran, the use of Cytoxan may predispose a patient to develop unusual infections, particularly when it is used in combination with high doses of steroids. Cytoxan should be taken in the morning with fluid and should not be taken at night, when fluid intake is low. Cytoxan and Imuran are not used together except in certain experimental conditions. Cytoxan (but not Imuran) can be given at a much higher dose intravenously on a monthly basis. This may be quite effective for severe disease and my help to avoid some of the side effects that occur with daily dosages of this drug.

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Imuran

Imuran is less potent and less effective than Cytoxan, but it has far fewer side effects. Its use may cause the white blood cell count, platelet count, or red blood cell count to decrease, and it might slightly increase the risk of developing lymphoma (a cancer involving the lymph glands, liver and spleen). However, it is well tolerated in most cases. Blood tests determine the white blood cell, platelet and red blood cell count should be taken regularly in patients receiving Imuran. Adjustments in dosage are made if the tests indicate a serious decrease in the blood count. One in 300 people can't remove Imuran from their systems, and they quickly develop side effects.

Related Drugs

Other cytotoxic drugs related to cyclophosphamide (Cytoxan) are chlorambucil (Leukeran) and nitrogen mustard (Mustargen). Leukeran has similar side effects to Cytoxan. As previously stated, lupus patients taking cyclophosphamide (Cytoxan) azathioprine (Imuran), chlorambucil (Leukeran) or nitrogen mustard (Mustargen) need to have their blood counts monitored each month. In response to the lab tests and side effects, drug dosage is adjusted to prevent or reverse any serious toxicity.

Methotrexate is usually given orally once a week, although it may also be given by injection. The dosage is generally 5 to 15 milligrams per week. Methotrexate is well tolerated by most patients. It does not predispose a patient to develop malignancies. However, liver disease and lung reactions can occasionally occur with the use of methotrexate and it can be sun sensitizing. Dosage may need to be decreased if kidney disease is present. Blood counts should also be taken each month in patients receiving this drug and dosage modified if side effects are detected.

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