



Neurology/NeuroSurgery

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Cyclosporine

Cyclosporine is used predominantly in small-animal medicine for its immunosuppressant effects that focuses on the cell-mediated immune system.

Cyclosporine is useful as an immunosuppressant for immune-mediated diseases. Its use with central nervous system inflammatory/immune-mediated diseases remains in the incipient phase. While Cyclosporine's exact mechanism of action is not known, it is believed that it acts by a specific, reversible inhibition of immunocompetent lymphocytes to the G0 or G1 phase of the cell cycle. T-helper lymphocytes are the primary target, but T-suppressor cells are also affected. Lymphokine production and release, including interleukin-2, T-cell growth factor, are also inhibited by Cyclosporine.

Side effects with the use of Cyclosporine include vomiting, anorexia, and diarrhea. Cyclosporine has an unpleasant taste, which can make the use of the elixir form difficult, especially in cats. Gingival hyperplasia (thickened gums) and papillomatosis (warts) is described in dogs. Cats with excessively high levels may develop anorexia. Increased hair growth has also been noted in feline patients receiving Cyclosporine. Cyclosporine should not be used in patients with malignant cancers, patients with significant hepatic or renal disease (while nephrotoxicity and hepatotoxicity are potentially an issue in dogs and cats, it appears that extremely high blood levels greater than 3000 nanogram/mL are necessary before this problem is appreciated), and in patients with hypersensitivities to any component of its mixture (polyoxyethylated castor oil). Cyclosporine has been shown to be fetotoxic and embryotoxic. Use during pregnancy should be limited to when the risks outweigh the benefit. The use of Cyclosporine in combination with other chemicals should be discussed with your veterinarian, as pharmacokinetic interactions have been noted resulting in increases and decreases in Cyclosporine levels.

Serum Cyclosporine concentrations reach a steady state with three days of twice a day therapy. Serum levels should initially be assessed within 7 days for any adjustments. Samples should be taken 2-4 hours after administration.