Cyclosporine (Sandimmune) Overview

Cyclosporine is an immunosuppressant medication used to prevent organ rejection in transplant patients and is also indicated in the treatment of psoriasis and rheumatoid arthritis. Cyclosporine works by inhibiting an enzyme called calcineurin that is responsible for production of cytokines, such as IL-2. Suppression of IL-2 decreases B cell and cytotoxic T cell production effectively suppressing the patient’s immune system. Plasma levels should be monitored periodically to ensure that levels do not become toxic or subtherapeutic. Patients taking cyclosporine should not drink grapefruit juice, as it prevents the drug from being metabolized and can lead to toxicity. It is important to note that when combined with other immunosuppressant medications, cyclosporine can increase a patient’s risk of developing lymphomas.



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Mechanism

Immunosuppressant
Moon-suppressed
Cyclosporine is an immunosuppressant medication used to prevent organ rejection in transplant patients. Cyclosporine works by inhibiting an enzyme called calcineurin that is responsible for production of cytokines, such as IL-2.

Inhibits Calcineurin, Decreasing IL-2
Inhibiting-chains on Calcium-cow-urchin with Down-arrow from Interlocked (2) Tutu spines
Inhibition of calcineurin suppresses production of cytokines, such as IL-2, that are responsible for producing B cells and cytotoxic T cells. By decreasing production of these cells, cyclosporin effectively suppresses the patient’s immune system.

Indications

Prevent Transplant Rejection
Train-plant Rejected
Cyclosporine is an immunosuppressant medication, usually given with a glucocorticoid, used to prevent organ rejection in transplant patients. Unlike other immunosuppressants, this medication does not suppress the bone marrow.

Psoriasis
Sorcerer
Psoriasis is an inflammatory disorder that causes overproduction of keratinocytes, or skin cells. Inflammatory T cells play a key role in the development of this disorder and are likely responsible for secreting cytokines that lead to excessive proliferation of keratinocytes. Cyclosporine is used to treat psoriasis by suppressing the production of cytokines.

Rheumatoid Arthritis
Roman King-Arthur
In patients with rheumatoid arthritis, the immune system produces cytokines that attack synovial tissue, producing inflammation and joint destruction. Cyclosporine is used to suppress the production of cytokines, thus slowing the progression of the disease.

Considerations

Monitor Plasma Levels
Plasma-TV Level-indicator
Therapeutic levels of cyclosporine must be maintained in order to effectively prevent organ transplant rejection. Plasma levels should be monitored periodically to ensure that levels do not become toxic or subtherapeutic.

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Avoid Grapefruit Juice

Avoid-sign at Grapefruit Juice

Patients taking cyclosporine should not drink grapefruit juice. Grapefruit juice prevents the drug from being metabolized and can lead to toxicity.

Increased Risk of Lymphoma

Up-arrow Risk of Lime-foam

Cyclosporine, when combined with other immunosuppressant medications, can increase a patient’s risk of developing lymphomas.

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