

Severely Immunosuppressed Definitions – April 10, 2020 - 1140

Spectrum Health contact Dr. Daliya Khuon *Highlight denotes new content

Definition

- History of solid organ or bone marrow transplant
- Cancer undergoing chemotherapy
- Primary immunodeficiency (Contact Nick Hartog, MD for help)
- HIV infection
- Immunosuppressive medications (Listed Below)

Immunosuppressive Medications

Steroids:

- Prednisone ≥ 20 mg/day for at least 14 days (or the equivalent of prednisone, dexamethasone, solumedrol, methylprednisone, and deflazacort, see UpToDate comparison chart)
- Corticotropin (ACTH)

Monoclonal antibodies:

- Anakinra (Kineret)
- Basiliximab (Simulect)
- Canakinumab (Ilaris)
- Natalizumab (Tysabri)
- Obinutuzumab (Gazyva)
- Ofatumumab (Arzera)
- Rituximab (Rituxan, Ruxience, Truxima)
- Tocilizumab (Actemra)
- Ustekinumab (Stelera)
- Vedolizumab (Entyvio)

TNF inhibitors:

- Infliximab (Remicade)
- Etanercept (Enbrel)
- Adalimumab (Humira)
- Certolizumab (Cimzia)
- Golinumab (Simponi)

Miscellaneous:

- Abatacept (Orencia)
- Antithymocyte globulin (Thymoglobulin)
- Azathioprine (Imuran) > 50 mg/day
- Belatacept (Nulojix)
- Cyclosporine (Gengraf, Neoral, Sandimmune)
- Cyclophosphamide
- Everolimus (Afintor, Zortess)

- Methotrexate (Otrexup, Rasuvo, Rheumatrex, Trexall, Xatmep) ≥ 0.4 mg/kg/week
- Mycophenolate mofetil (Sandoz)
- Sirolimus (Rapamune)
- Tacrolimus (Astagraf, Envarsus, Prograf)

Comparison of Systemic Corticosteroid Preparations

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Comparison of systemic corticosteroid preparations

	Equivalent doses (mg)	Anti-inflammatory activity relative to hydrocortisone*	Duration of action (hours)
Glucocorticoids			
Short acting			
Hydrocortisone (cortisol)	20	1	8 to 12
Cortisone acetate	25	0.8	8 to 12
Intermediate acting			
Prednisone	5	4	12 to 36
Prednisolone	5	4	12 to 36
Methylprednisolone	4	5	12 to 36
Triamcinolone	4	5	12 to 36
Long acting			
Dexamethasone	0.75	30	36 to 72
Betamethasone	0.6	30	36 to 72
Mineralocorticoids			
Fludrocortisone	Not used for an anti-inflammatory effect [†] . The typical dose of fludrocortisone for mineralocorticoid replacement is 0.1 to 0.2 mg.		12 to 36

The mineralocorticoid effect of commonly administered glucocorticoids may be estimated as follows:

- When given at replacement doses, triamcinolone, dexamethasone, and betamethasone have no clinically important mineralocorticoid activity.
- 20 mg hydrocortisone and 25 mg of cortisone acetate each provide a mineralocorticoid effect that is approximately equivalent to 0.1 mg fludrocortisone.
- Prednisone or prednisolone given at anti-inflammatory doses ≥ 50 mg per day provide a mineralocorticoid effect that is approximately equivalent to 0.1 mg of fludrocortisone.

* Equivalent anti-inflammatory dose shown is for oral or intravenous (IV) administration. Relative potency for intra-articular or intramuscular administration may vary considerably.

† The anti-inflammatory potency is 10 to 15 times that of hydrocortisone; however, fludrocortisone is not used clinically as an anti-inflammatory agent.

Data from:

- Schimmer BP, Funder JW. ACTH, Adrenal Steroids, and Pharmacology of the Adrenal Cortex. In: Goodman & Gilman's: The Pharmacological Basis of Therapeutics, 12th ed, Brunton LL, Chabner BA, Knollmann BC (Eds), McGraw-Hill Education 2011.
- Liu D, Ahmet A, Ward L, et al. A practical guide to the monitoring and management of the complications of systemic corticosteroid therapy. *Allergy Asthma Clin Immunol* 2013, 9:30.

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