



Medications and Immunosuppression

COVID-19 may be more severe in patients who are immunosuppressed so some may be wondering just what medications cause immunosuppression. The most commonly used medications for the following conditions have little or no effect on the strength of the immune system:

- Diabetes
- Heart conditions (such as atrial fibrillation, angina, high blood pressure, past stroke, past heart attack, heart failure, high cholesterol [with the exception of the newest class of medications – the PCSK 9s: Praluent® and Repatha®])
- Mood disorders (such as anxiety, ADHD, depression, bipolar depression, PTSD, schizophrenia)
- Osteoarthritis (different from rheumatoid arthritis)
- Pain
- Thyroid conditions
- Stomach conditions (such as acid reflux/heartburn)

Medications that may affect the immune system or are immunosuppressive include (but not limited to):

- **Long-term corticosteroid therapy**
 - prednisone equivalent of ≥ 2 mg/kg/day or 20 mg/day if weight > 10 kg, for ≥ 14 days
Note: corticosteroids that are inhaled, applied to the skin, eyes or ears, or injected into joints are not considered immunosuppressive.
- Some medications used for **chronic inflammatory conditions** (e.g. rheumatoid arthritis, inflammatory bowel disease, psoriasis, lupus). Please note that hydroxychloroquine and sulfasalazine are not immunosuppressive.
 - *Disease Modifying Anti-Rheumatic Drugs (DMARDs)* - for example:
 - azathioprine (Imuran®) – low doses of azathioprine (3 mg/kg/day or less) are generally not considered immunosuppressive
 - cyclosporine (Neoral®, Sandimmune®)
 - leflunomide (Arava®)
 - mercaptopurine (Purinethol®)
 - methotrexate (Amethopterin®) – low doses of methotrexate (0.4 mg/kg/week or less) are generally not considered immunosuppressive
 - *Biologic DMARDs* - for example:
 - abatacept (Orencia®)
 - adalimumab (Humira®)
 - anakinra (Kineret®)
 - certolizumab (Cimzia®)
 - etanercept (Enbrel®, Brenzys, Erelzi)
 - golimumab (Simponi®)
 - guselkumab (Tremfya®)
 - infliximab (Remicade®, Inflectra, Renflexis, Remsima)

- ixekizumab (Taltz®)
 - risankizumab (Skyrisi®)
 - rituximab (Rituxan®, Truxima)
 - sarilumab (Kevzara®)
 - secukinumab (Cosentyx®)
 - tocilizumab (Actemra®)
 - ustekinumab (Stelara®)
 - vedolizumab (Entyvio®)
 - *Targeted Synthetic DMARDs* - for example;
 - baricitinib (Olumiant®)
 - tofacitinib (Xeljanz®)
 - upadacitinib (Rinvoq®)
 - *Others* – for example:
 - apremilast (Otezla®)
- **Cancer chemotherapy**
 - **Organ transplant antirejection medications** – for example:
 - azathioprine (Imuran®)
 - belatacept (Nulojix®)
 - cyclophosphamide (Procytox®)
 - cyclosporine (Neoral®)
 - everolimus (Certican®)
 - mycophenolate (Cellcept®, Myfortic®)
 - sirolimus (Rapamune®)
 - tacrolimus (Prograf®, Advagraf®)
 - **Some medications for severe asthma** – for example:
 - benralizumab (Fasenra®)
 - dupilumab (Dupixent®)
 - mepolizumab (Nucala®)
 - omalizumab (Xolair®)
 - reslizumab (Cinqair®)

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