

PHB



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Topic Name : Drug used in Myasthenia gravis

Drugs used in Myasthenia gravis

Myasthenia gravis (MG) is an autoimmune neuromuscular disorder characterized by muscle weakness and fatigue, typically worsening with activity and improving with rest. The treatment of myasthenia gravis aims to improve neuromuscular transmission, reduce symptoms, and prevent exacerbations. Here are the main drugs used in the management of myasthenia gravis:

- 1. Acetylcholinesterase Inhibitors:** e.g. Pyridostigmine, Neostigmine, Edrophonium
 - **Mode of Action:** Inhibits acetylcholinesterase, the enzyme responsible for breaking down acetylcholine, thereby increasing the availability of acetylcholine at the neuromuscular junction and improving muscle strength.
 - **Type of Formulation:** Oral tablets, oral solution, intravenous (IV) injection.
 - **Indication:** Symptomatic treatment of myasthenia gravis to improve muscle strength and reduce weakness.
 - **Dosage:** Individualized based on the patient's response and tolerance.
 - **Contraindications:** Hypersensitivity to the drug, mechanical obstruction of the gastrointestinal or urinary tract.
- 2. Immunosuppressive Therapy:** e.g. Corticosteroids (Prednisone), Azathioprine, Mycophenolate mofetil, Methotrexate, Cyclosporine, Tacrolimus, Rituximab
 - **Mode of Action:** Suppresses the immune system to reduce the production of autoantibodies and inhibit the inflammatory response against the neuromuscular junction.
 - **Type of Formulation:** Oral tablets, IV infusion.
 - **Indication:** Long-term management of myasthenia gravis to reduce disease activity, prevent exacerbations, and minimize the need for acetylcholinesterase inhibitors.

- **Dosage:** Individualized based on the patient's response, disease severity, and tolerability.
- **Contraindications:** Active infections, uncontrolled diabetes, peptic ulcer disease, hypersensitivity to the drug.

3. **Thymectomy:**

- **Indication:** Surgical removal of the thymus gland, which is often abnormal in individuals with myasthenia gravis. Thymectomy is recommended in selected patients, particularly those with thymoma or thymic hyperplasia, to improve symptoms and potentially achieve disease remission.

4. **Intravenous Immunoglobulin (IVIG):**

- **Mode of Action:** Provides passive immunomodulatory effects by supplying exogenous immunoglobulins to modulate the immune response and neutralize autoantibodies.
- **Indication:** Treatment of acute exacerbations of myasthenia gravis or as maintenance therapy in refractory cases.
- **Dosage:** Administered as a series of IV infusions over several days.
- **Contraindications:** Hypersensitivity to immunoglobulin products, history of severe thromboembolic events.

5. **Plasma Exchange (Plasmapheresis):**

- **Mode of Action:** Removes circulating autoantibodies and immune complexes from the plasma, reducing their pathogenic effects on neuromuscular transmission.
- **Indication:** Treatment of acute exacerbations of myasthenia gravis or as adjunctive therapy in severe cases refractory to other treatments.
- **Dosage:** Typically performed as a series of sessions over several days.
- **Contraindications:** Severe hypotension, unstable cardiac status, coagulopathy, infection at the access site.

6. **Symptomatic Treatment:**

- Other medications may be used to manage specific symptoms associated with myasthenia gravis, such as anticholinergic agents for excessive salivation and antispasmodic agents for gastrointestinal symptoms.