Prostacyclin Analogs

Prostacyclins are a type of eicosanoid that play a role in inflammatory pathways. Prostacyclin, also known as PGI2, is derived from prostaglandin H2 and used to make synthetic analogs to treat disease. Prostacyclin analogs work by vasodilating pulmonary and systemic arteries as well as inhibiting platelet aggregation. They are indicated in the treatment of pulmonary hypertension. Side effects include flushing and jaw pain. Examples of these medications are epoprostenol, iloprost, and treprostinil.

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Mechanism of Action

Prostaglandin I2 (Prostacyclin)
P-rasta Eye-(2)-tutu
After cyclooxygenase (COX) enzymes act to convert arachidonic acid to prostaglandin H2, prostacyclin synthase converts PGH2 into PGI2 also known as prostacyclin. Several other eicosanoids are formed from PGH2.

Vasodilation of Pulmonary and Systemic Arteries
Vase-dyed with Artery-O's Lungs and Sound-system
Prostacyclin analogs work by vasodilating arteries in the lungs and the body. This is why they are effective in treating pulmonary hypertension.

Inhibits Platelet Aggregation
Plates with Inhibiting-Chains
Prostacyclin analogs have antithrombotic properties that work to balance the actions of prothrombotic thromboxane A2 molecules. Patients may need to monitor for coagulation labs when taking this medication.

Indications

Pulmonary Hypertension
Lungs Hiker-BP
Prostacyclin analogs are indicated for patients with pulmonary hypertension. They help to relax pulmonary vasculature and keep pressures down.

Side effects

Flushing
Flashlight
Side effects of protacyclin analogs include flushing from capillary vasodilation.

Jaw Pain
JAWS-shark Jaw Pain-bolts
Another side effect from taking prostacyclin analogs is jaw pain.

Drugs

Epoprostenol
E-pick-P-rasta
Epoprostenol has a short half-life of 2–3 minutes. It can be continuously administered via central venous catheter or a peripherally inserted central catheter (PICC).

Iloprost

Eye-glow-P-rasta

Iloprost has a half-life of 20–25 min and requires six to nine treatments per day. Giving iloprost requires a specially designed adaptive aerosol delivery device which matches the patient's individual breathing pattern.

Treprostinil

Tree-P-rasta

Treprostinil can also be administered continusouly via intravenous access. It has a half-life of 4 hours.