Acetazolamide

Acetazolamide a diuretic that works by inhibiting carbonic anhydrase, halting the production of bicarbonate from water and CO_2. By inhibiting carbonic anhydrase, acetazolamide leads to sodium bicarbonate diuresis, acidifying the blood and alkalyzing the urine. This medication is helpful in treating glaucoma, as it decreases aqueous humor. It also decreases CSF pressure, and is used to treat pseudotumor cerebri. Other indications for treatment include CHF, metabolic alkalosis, and altitude sickness. Side effects of this drug include hyperchloremic metabolic acidosis, and paresthesias.

PLAY PICMONIC

Indications

Glaucoma

Glock-eye

Acetazolamide is an effective treatment for glaucoma as it reduces intraocular pressure. This drug inhibits the formation of bicarbonate in the eye, which draws in sodium, which is followed by water via osmositic potential. This is typically called the aqueous humor. Thus, acetazolamide reduces bicarbonate, leading to decreased aqueous humor in the eye.

Altitude Sickness

High Altitude Vomiting

This drug may be used in prophylaxis and treatment of altitude sickness. Acetazolamide works by decreasing bicarbonate stores, acidifying the bloods pH. This mechanism facilitates the renal compensation for respiratory alkalosis, allowing ventilation to increase without having respiratory alkalosis.

Pseudotumor Cerebri

Sumo-tumor Cerebrum-I

Acetazolamide may be indicated for treatment of pseudotumor cerebri, or idiopathic intracranial hypertension. Carbonic anhydrase inhibitors may be able to reduce the rate of cerebrospinal fluid production to lower pressure.

CHF

CHF Heart-balloon

Acetazolamide may be used for diuresis when treating CHF-associated edema.

Metabolic Alkalosis

Metal-ball Elk-loser

Because of acetazolamide's actions in reducing total body stores of HCO3-, it may be used to treat metabolic alkalosis.

Mechanism of Action

Carbonic Anhydrase Inhibitor

Carbon-fiber Hydra with Inhibiting-chains

Acetazolamide works by inhibiting carbonic anhydrase, interfering with bicarbonate absorption in the kidneys. Thus, the blood is acidified and the urine is alkalyzed.

Sodium Bicarbonate (NaHCO3) Diuresis

Salt-shaker Bi-car-bomb Die-rocket

Acetazolamide causes self-limited NaHCO3 diuresis, and reduces total body stores of HCO3-.

Side Effects

Metabolic Acidosis

Metal-Ball Acidic-lemon

A side effect of acetazolamide use may be metabolic acidosis, as it causes reduction of total HCO3- body stores, acidifying the blood. Patients may also become hyperchloremic.

Paresthesias

Paris-t-shirt with Pins-and-needles

Another adverse effect of acetazolamide may be paresthesias, or tingling and numbness within the fingers and toes.