Hydralazine

Hydralazine is a vasodilator that helps to relax smooth muscle and decrease peripheral resistance, helping to lower blood pressure and reduce afterload. This drug increases cyclic GMP levels, leading to smooth muscle relaxation, and ultimately, arteriodilation with a slight amount of venodilation. Thus, hydralazine directly relaxes arteriolar muscle to treat severe hypertension and CHF, and is often combined with methyldopa to treat hypertension in pregnancy. Side effects of hydralazine use include drug-induced lupus and up to 95% of patients with this affliction will display anti-histone antibodies. Furthermore, this medication can cause reflex tachycardia due to the drug's sudden pressor actions, and it is often co-administered with a β-blocker to prevent this.



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Indications

Reduce Afterload
Down-arrow After-load Heart-pump
Hydralazine relaxes smooth muscle and preferentially vasodilates arterioles, creating an afterload reduction. It is indicated in diseases where there is cardiac failure or excess systemic resistance.

Severe Hypertension
Severed Hiker-BP
Hydralazine is used clinically to treat severe hypertension, however it is not indicated for essential hypertension. It is also a first-line treatment for hypertension during pregnancy (combined with methyldopa).

Safe during Pregnancy
Pregnant-lady inside Safe
Hydralazine is indicated for hypertension during pregnancy along with methlydopa.

CHF
CHF Heart-balloon
Along with severe hypertension, hydralazine can be used to treat CHF.

Mechanism of Action

Increases cGMP
Up-arrow cycle-GraMP
While the mechanism of action of hydralazine is not completely understood, it is thought to work by increasing cyclic GMP levels, which ultimately inhibits contraction in smooth muscle and leads to blood vessel relaxation.

Vasodilates Arterioles
Vase-dyed with Artery-O's
Increases in cyclic GMP levels and inhibition of smooth muscle contraction leads to greater vasodilation of arterioles than veins.

Side Effects

Drug-induced Lupus
Loopy Pill-butterfly
Drug-induced lupus, an autoimmune response caused by chronic use of some drugs, may be seen as a side effect. Patients will likely display anti-histone antibodies.

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Reflex Tachycardia

Reflex-hammer Tac-heart-card

Reflex tachycardia is a possible side effect, which occurs as a compensatory response to sudden decreased blood pressure to maintain cardiac output. Hydralazine is often coadministered with a beta-blocker to prevent this. Hydralazine is contraindicated in angina and CAD, and can cause angina.

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