Spironolactone (Aldactone)

Spironolactone (Aldactone) is a potassium-sparing diuretic. Spironolactone has the opposite effect as aldosterone, as it promotes potassium retention and sodium excretion. This drug produces minimal diuresis because the excreted sodium is quickly reabsorbed by the nephron. It's important to note that spironolactone may take up to 48 hours to note changes in diuresis.



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Mechanisms

Inhibition of Aldosterone

Inhibiting-chains on Aldo-stereo

Aldosterone is responsible for sodium and water retention and potassium excretion. Spironolactone works by blocking the effect of aldosterone and, therefore, increases potassium reabsorption and sodium excretion.

Potassium Retention

Banana Jail

Spironolactone inhibits aldosterone and results in increased reabsorption of potassium. This mechanism is very important in cardiac patients, as elevated potassium levels can lead to dysrhythmias. To maintain an ion balance in the nephron as potassium is retained, sodium will be excreted.

Indications

Hypertension

Hiker-BP

Spironolactone is usually used subsequently with a loop or thiazide diuretic to decrease blood pressure by excreting fluids from the body. Loop and thiazide diuretics excrete potassium, which counteracts the potassium retention effects of spironolactone.

Edema

Edamame

Spironolactone increases diuresis of excess fluid in the body; therefore, when combined with loop and thiazide diuretics, Aldactone can be useful in treating edema.

Heart Failure

Dead Heart

Spironolactone is often utilized in the management of heart failure patients due to its properties of blocking aldosterone receptors in the heart and blood vessels, along with decreasing fluid and retaining potassium. Aldosterone has harmful effects on the heart, so blocking it provides beneficial results in the HF patient.

Side Effects

Hyperkalemia

Hiker-banana

Spironolactone promotes the reabsorption of potassium and, therefore, can result in the patient becoming hyperkalemic.

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Endocrine Effects

Endocrine-glands

The molecular structure of spironolactone is such that it can block multiple types of steroid receptors. Other than blocking mineralocorticoid receptors, spironolactone can also block androgen receptors, leading to anti-androgenic activity. In men, this can cause gynecomastia, erectile dysfunction, and decreased libido. In women, it can cause irregular menses. These anti-androgen effects are actually desired when spironolactone is used to treat conditions such as hirsutism or acne vulgaris.

Consideration

Avoid Potassium Supplements

Avoid Banana Pills

Spironolactone increases potassium reabsorption. This can lead to hyperkalemia if not monitored closely. That is why a patient on spironolactone should not be given additional potassium supplements.

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