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What are Angiotensin inhibitors and Angiotensin 11 receptor Blockers?

Transcript:

When you are over 60, high blood pressure also called Essential hypertension is most likely to occur in men and women equally. There is no identifiable cause, but is thought to be linked to genetics, poor diet, lack of exercise obesity and stress factors.

It is a silent killer, unless BP is checked regularly and treated with antihypertensive medication if the readings are above the normal range and lifestyle changes.

Other inevitable causes are insulin resistance, high alcohol intake, high salt intake, aging, low potassium, and calcium intake

Now let us go deeper into the subject of primary medication for high blood pressure and how they work.

It is important to know what medication your doctor has prescribed for any ailment and seek knowledge how those drugs work in your body and their side effects.

Having such prior knowledge seem to help psychologically.

This talk is about knowing how angiotensin inhibitors and angiotensin receptor blockers, the most common primary anti-hypertensive medication most over 60's are prescribed.

Your liver creates and releases a protein called **angiotensinogen**, repeat angiotensinogen. It means a protein secreted in the liver that tenses the arteries. It is released into your blood stream and is available for action anytime.

It assists in vasoconstriction and an increase in blood pressure. Vasoconstriction means narrowing of the arteries to increase peripheral resistance.

Angiotensinogen becomes active at moments you bleed accidentally. Prompt narrowing of arteries help to reduce the volume of blood lost, and divert the blood to the brain and heart and other internal organs.

Angiotensinogen is broken by an enzyme secreted by the kidneys called renin into angiotensin 1 Renin also stimulates the release of aldosterone from the adrenal cortex.

Adrenal gland is situated like a cap on the kidneys.

The main function of aldosterone is to regulate salt and water in the body that influences blood pressure.

So, repeating-Renin breaks or cleave the angiotensinogen produced by the liver to form angiotensin 1

Angiotensin 1 is physiologically inactive but acts as a precursor for angiotensin 11.

This process of converting angiotensin 1 into angiotensin11 is catalyzed by an enzyme called **angiotensin converting enzyme or ACE.**

ACE is found in the inner lining of blood vessels of the lungs and kidneys.

The drug referred to as ACE inhibitors inhibits the action of angiotensin- converting enzyme, thus decreasing the production of angiotensin 11.

Angiotensin 11 increases the blood pressure by constricting the blood vessels. It can also trigger thirst or the desire for salt.

It is a powerful substance. It circulates around the body in the bloodstream and induces several changes on the cardiovascular system.

These ACE inhibitor enzyme drugs help relax your veins and arteries to lower your blood pressure. They are effective in the treatment of other cardiovascular and kidney problems.

The treatment plan for cardiovascular disease, including high blood pressure is based on an ACE INHIBITOR, A CALCIUM CHANNEL BLOCKER, A BETA BLOCKER, AND A LONG ACTING NITRATE with different combinations on each patient's requirements.

ACE inhibitor drugs usually show quick results in hypertensive patients

Not only for hypertension and congestive heart failure, BUT ACE inhibitors are ALSO given to patients to help prevent a heart attack.

They are also given to patients after myocardial infarction because ACE inhibitors have proven to hinder inflammation and encourage growth of new blood vessels.

There are side effects of ACE inhibitors in some patients;

Nausea

Drowsiness

High levels of blood potassium

Low blood pressure

Dizziness

Headache

Weakness

Rash

Cough

Altered taste sensations

Angiotensin 11 acts on the adrenal cortex, a gland located on top of each kidney. This gland produces sex hormones, cortisol, and aldosterone

Aldosterone sends signals to the kidneys resulting in the kidneys absorbing more sodium and water into the blood stream and releasing potassium into the urine.

Aldactone is a drug that acts by working against a hormone called aldosterone. Too much aldosterone causes increased amounts of sodium (a mineral) and water to be retained by the kidneys, while too much potassium is removed from the body. Aldactone works against the effects of aldosterone.

It is a drug of choice given to reduce heart patients to get rid of excess water and sodium from the body and retain potassium.

Lasix another common drug prescribed for the same situation gets rid of essential potassium also from the body.

The renin-angiotensin-aldosterone becomes a system and referred to as RAAS is a critical regulator of blood volume , arterial tone blood pressure and fluid balance.

It does this by increasing sodium and water reabsorption, and vascular tone, meaning increased resistance.

Now let us talk about the Angiotensin 11 blockers used to control high blood pressure and used for heart disease.

Angiotensin 11 receptor blockers block the action of the angiotensin11 at the receptor site to reduce the blood pressure.

The receptor blocker drugs end as 'tans' to recognize from the inhibitors ending as 'prils'

Common angiotensin 11 receptor blocking drugs are candesartan, Atacand, irbesartan, Avapro, losartan, Micardia Cozaar and vasartan and Diovan.

Side effects:

Unlike the inhibitors these receptor blockers are well tolerated. The incidence of cough is much less with these blockers. Kidney function is not affected by them. Central nervous system side effects such as headaches, dizziness and fatigue can arise as with the ACE inhibitors.