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Have you ever wondered why your doctor gives you tablets to make you pass urine when the problem is with your heart and not with your kidneys? For heart failure and high blood pressure, water tablets can really work.

Diuresis is a Greek word made up of ‘dia’ (thorough) and ‘ouresis’ (urination). Diuretics, or water tablets, certainly do that, causing you to make frequent trips to the toilet (polyuria).

The heart-kidney connection

Your doctor is quite right that he can help your heart by concentrating on your kidneys. Your kidneys and your heart are in constant communication with each other, especially when it comes to blood pressure control. This is most clearly seen in patients after kidney transplant: the blood pressure of the donor often ‘goes with’ the transplant. In one Danish experiment [6], those receiving a kidney from a donor with high blood pressure were more likely to develop high blood pressure than those receiving a kidney from someone with normal blood pressure.

When your heart is struggling to maintain your blood pressure (perhaps due to dehydration or bleeding), your kidneys release a hormone called renin [7].

Renin’s effect to increase blood pressure can be described by considering a hosepipe. Water pressure in the pipe can be increased by opening the tap more, letting more water enter. Renin increases the amount of water in your blood vessels by stimulating thirst and by reducing the amount of water passed as urine. Pressure in the hosepipe is further increased by making the pipe narrower (say, by partly blocking the outflow with your thumb). Renin narrows your blood vessels.

Friend and foe

As well as being your heart’s best friend in blood pressure control, renin can sometimes be the root of the problem.

In heart failure [8] (when the heart does not have enough strength to pump blood around your body), renin levels really increase to boost blood volume and so help blood reach your organs. Trouble is, too much renin leads to excessive water retention and so the patient's lungs may start to fill with fluid; your legs and ankles can also become painfully swollen. Some cases of high blood pressure are also caused by excess renin.

How diuretics help

Simply put, diuretics increase urine output to rid the lungs of water (reducing breathlessness), remove swelling from the limbs and drop blood pressure that has risen as a result of renin.

I've seen lives improved by diuretics in my role as a nurse.

I've seen lives improved by diuretics in my role as a nurse. It's important, though, that the dosage is kept to a minimum since diuretics don't only cause you to lose excess water: potassium, magnesium [9], sodium and calcium can also be lost; blood pressure can also drop too low, making you dizzy.

Your doctor, though, will keep you safely on a low dose, being aware that even a slight increase in dosage can be counterproductive, since renin levels will rise as blood pressure drops, causing water to be reabsorbed again.

The A,B,C,D of blood pressure control

It's likely that you will be prescribed a diuretic along with another drug that lowers blood pressure: there's A for ACE inhibitors [10], B for beta-blockers [11], C for calcium channel blockers and D for diuretics. Controlling blood pressure is not as easy as ABC(D) [12] though: a healthy diet, exercise and restricting the amount of salt that you eat are also important.

MEDICAL JOURNALISTS' ASSOCIATION

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