

## CARDIOLOGY

# Wrong kind of high

There is help for people suffering from high blood pressure that is hard to control, even with multiple medications.

Resistant hypertension is defined as poorly controlled blood pressure (BP) despite the patient being on three or more types of antihypertensive medications (one ideally being a diuretic) at optimal doses. This form of hypertension occurs in less than 10% of hypertensive patients.

### Possible causes of resistant hypertension

Resistant hypertension may be caused by one or more underlying medical conditions. Doctors typically investigate the following secondary causes:

- Abnormalities in the hormones that control blood pressure
- Renal artery stenosis (accumulation of artery-clogging plaque in blood vessels that nourish the kidneys)
- Sleep problems (such as obstructive sleep apnoea)
- Obesity or heavy intake of alcohol or other substances that can interfere with blood pressure

### Why is it dangerous?

Studies have shown that people with resistant hypertension are at greater risk of experiencing two cardiovascular conditions at the same time compared to patients with non-resistant hypertension. These conditions include ischaemic heart disease, congestive heart failure and chronic kidney disease.

### Monitoring and managing resistant hypertension

Controlling BP levels starts from understanding your pressure patterns. This can be done by wearing a pager-sized automatic BP recorder for 24 hours or checking your BP level with a home monitor several times a day.

Treatment usually involves diagnosis and alleviation of secondary causes, a change or addition of medications, as well as lifestyle modification. These include:

- Consuming a well-balanced, low-salt diet
- Limiting alcohol intake
- Enjoying regular physical activity
- Maintaining a healthy weight
- Managing stress
- Taking medications properly

People with resistant hypertension should take the right medications in the right doses and at the right time. Avoid certain medications or supplements that can raise BP levels and worsen BP control, such as non-steroidal anti-inflammatory drugs (NSAIDs), diet pills, decongestants, glucocorticoids, corticosteroids, licorice and more.



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### Renal nerve denervation

Blood pressure is partly controlled by a group of nerves called sympathetic nerves, which wrap around the kidney (renal) arteries. There is a theory that high blood pressure can be lowered if these nerves are somehow incapacitated. This has led to the development of a novel therapy known as renal nerve denervation (RDN) to treat resistant hypertension. It is a catheter-based technique similar to a catheter-based coronary angiogram. RDN involves placing a catheter from the leg (femoral) artery directly into the renal arteries (left and right). The tip of the catheter contains electrodes that ‘burn away’ the renal sympathetic nerves.

However, RDN is only suitable for patients with true resistant hypertension. Pseudo-resistant hypertension is not the same as true resistant hypertension; the former refers to patients who:

- lack BP control resulting from improper BP measurement,
- do not follow medication prescriptions, or
- have higher BP readings at the doctor’s office or in a medical setting compared to other environments (this is known as white coat hypertension). 

