PATHOLOGY TESTS EXPLAINED

Information about pathology tests to help everyone take control of their health and make the right decisions about their care.

WHAT YOU SHOULD KNOW ABOUT **ALDOSTERONE AND RENIN TESTS FOR CONN'S SYNDROME**

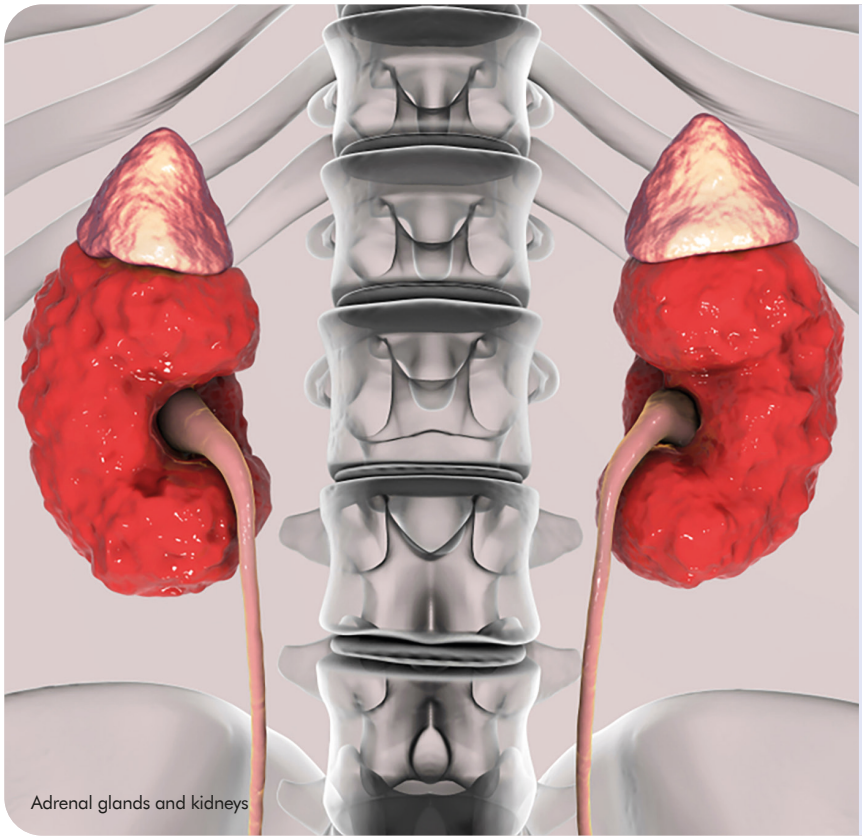
If you have high blood pressure that is not responding to standard medications your doctor may recommend tests for aldosterone and renin. Around five to 10 per cent of people with high blood pressure have a high aldosterone level known as primary aldosteronism or Conn's syndrome.

Aldosterone is a hormone that helps the body absorb salt through the kidneys and maintain a normal blood pressure. It does this by holding on to salt (sodium) and removing potassium which is filtered from the blood into the urine.

Aldosterone is made by the adrenal glands which sit on top of the kidneys, and the amount that is produced is controlled by renin, an enzyme made by the kidneys. Conn's syndrome occurs when one or both adrenal glands make too much aldosterone which leads to too much salt and water being retained in the body, causing high blood pressure. In some people this can also lead to low blood potassium levels.

High levels of aldosterone can directly damage the heart, brain, kidney and blood vessels and people with Conn's syndrome are more likely to have heart disease, stroke and kidney failure than those people with other causes of high blood pressure.

Diagnosing Conn's syndrome is important because it represents one of the few causes of high blood pressure that is potentially curable. It can sometimes be difficult to diagnose because people have variable symptoms or no symptoms at all.



Adrenal glands and kidneys

Primary aldosteronism

About 30 percent of Conn's syndrome cases are caused by benign adrenal tumours, and about 60 percent are due to overactivity of both adrenal glands in a condition called bilateral adrenal hyperplasia. There are other less common causes and rarely, it is caused by cancer of the adrenal gland. Hereditary types of primary aldosteronism are also rare and most often seen in people younger than 20 years with a family history of stroke and hypertension.

Secondary aldosteronism

Secondary aldosteronism is caused by problems outside the adrenal glands. It must be differentiated from primary aldosteronism. Too much aldosterone can be the result of anything that increases renin levels, such as is narrowing of the blood vessels that supply the kidneys, low blood pressure, or low salt levels in the urine. Other causes include congestive heart failure, cirrhosis, kidney disease, and toxaemia of pregnancy.

What can your results tell you?

An aldosterone and renin blood test are usually ordered together when you have high blood pressure, especially if you also have low potassium level. The blood is collected in the morning, at least two hours after getting out of bed.

If you have primary hyperaldosteronism your aldosterone level will be high while renin will be low or undetectable. The potassium level may be low or normal.

Condition	Aldosterone	Renin
Primary Aldosteronism	High	Low
Secondary Aldosteronism	High	High

Further testing

If your results show primary hyperaldosteronism, you may need more tests to confirm the diagnosis. A saline infusion test can be used to see if the aldosterone levels decrease when salt levels are elevated. You may be also asked to have a CT scan to look at the size and shape of your adrenal glands. These images can help identify the cause of your high aldosterone levels.

Looking for cell changes and thickening of the adrenal glands –hyperplasia – can be tricky because the size of normal adrenal glands can vary significantly from one person to the next. If this is suspected, but not easily locatable you may be asked to have adrenal venous sampling. In this procedure, blood is collected from the vein that carries blood away from each adrenal gland and tested for aldosterone.

Sometimes cortisol is also measured, and an aldosterone / cortisol ratio calculated. The results from the two adrenal glands are compared. If they are significantly different, then it is likely the problem is in the gland with the highest aldosterone concentration. Adrenal venous sampling is performed only in hospital based specialised centres.

Questions to ask your doctor

Do I continue to take my old blood pressure medication, or do I have new medication?

How quickly should my blood pressure return to normal?

Are there any side effects of the medication?

Will I be able to stop my medication in the future?

Will surgery cure my condition?

For more detailed information on these and many other tests go to **pathologytestsexplained.org.au**

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www.pathologytestsexplained.org.au

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