

Tip 11 (March 2010)

Renin and Aldosterone measurements in hypertension

The principal indication for measurement of renin and aldosterone in a hypertensive patient is to screen for primary aldosteronism (Conn's Syndrome). This is a common secondary cause of hypertension (up to 5% of unselected hypertensives and 20% or resistant hypertensives)¹. In this condition there is autonomous hypersecretion of aldosterone from a single adrenal adenoma, or bilateral adrenal hyperplasia. Autonomous adenomas are often treated curatively with laparoscopic adrenalectomy, and bilateral hyperplasia is treated medically with aldosterone antagonists.

Hypokalaemia (+/- mild hypernatraemia) is a strong pointer to the diagnosis and is sometimes "unmasked" by low dose diuretic therapy, but because only 50% of patients with primary aldosteronism are hypokalaemic at presentation I believe every patient you start on antihypertensive therapy needs to be screened for this condition once.

The test is performed at the LabPlus Auckland Hospital laboratory, but the bloods can be collected in the community laboratories. Existing antihypertensive medications (ACE-inhibitors, ARB's calcium channel blockers, beta blockers, and diuretics) do have a modest effect on interpretation of the results but I don't usually stop them – **with the exception of spironolactone, in the presence of which, renin and aldosterone results are uninterpretable, and it needs to be stopped two weeks before doing the test.**

The "normal" ranges given by the LabPlus laboratory are 4-46 mU/l for renin and 100-850pmol for aldosterone.

Possible primary aldosteronism should be suspected if:

Aldosterone is highish (> 400pmol/l)
+
Renin is lowish (<10mU/l)
+
Aldosterone/Renin ratio is highish (>40)

In the presence of this sort of abnormality please refer me the patient and I will arrange a saline-suppression test which will confirm or refute the diagnosis and determine whether further investigation with adrenal imaging is appropriate.

1.Primary aldosteronism:diagnosis and treatment. J.Clin.Hypertens.2006;8:887-93