

5 Things Every Primary Care Physician Should Know About Primary Aldosteronism (PA)



1. PA is relatively common and likely exists on a spectrum. Primary aldosteronism (PA) accounts for an estimated 17-23% of cases of resistant hypertension, which is defined as a blood pressure $\geq 140/90$ despite taking 3 antihypertensive medications. Evolving evidence suggests that PA exhibits a spectrum of disease, ranging from more mild and subtle phenotypes to more severe and clinically overt ones. The detrimental effects of PA are not limited to hypertension: when matched with essential hypertension controls of the same age, sex, and blood pressure, patients with PA had higher cardiovascular morbidity and mortality.¹⁻³

2. Hypokalemia is often absent. Presence of spontaneous or diuretic-induced hypokalemia can be suggestive of underlying PA; however, it is an unreliable indicator as it is often absent, especially in milder disease. Only an estimated 9-37% of patients with PA have hypokalemia.^{1,4}

3. The Aldosterone-Renin Ratio (ARR) is affected by several factors. Screening with serum renin and aldosterone should be performed in the morning, with a normal serum potassium, while off of mineralocorticoid antagonists for at least 4 weeks. Multiple other medications can also affect results, causing either a false positive (beta-blockers, clonidine, methyldopa, NSAIDs) or false negative (ACE inhibitors, ARBs, calcium channel blockers, diuretics). A few antihypertensive medications are considered unlikely to affect testing: hydralazine, slow-release verapamil, doxazosin, prazosin, and terazosin. Positive testing involves a suppressed renin level with elevated or inappropriately normal aldosterone. Confirmatory testing methods include oral salt loading, saline suppression or captopril suppression testing.¹

4. Adrenal vein sampling (AVS) is the gold standard for proving unilateral aldosterone hypersecretion. Even in the case of confirmed PA and an adrenal adenoma on imaging, AVS is often still pursued as adrenal adenomas can be non-functional and a radiographically normal-appearing adrenal gland can be hypersecretory. AVS is a technically challenging and provider-dependent procedure, whereby the adrenal veins are sequentially cannulated to sample aldosterone and cortisol, the latter of which is used as a control in lateralization calculations.

5. Adrenalectomy provides a cure for hypertension in ~50% (30-85%) of cases. Pre-operative factors that predict higher likelihood of cure include: younger age and those with a shorter duration of hypertension (<5 years), patients on ≤ 2 medications pre-operatively, higher pre-operative ARRs, and positive pre-operative response to spironolactone. Patients who are poor surgical candidates, decline testing or surgery, or who have bilateral disease are managed medically typically with either spironolactone or eplerenone.⁵

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