Primary Aldosteronism Testing

INDICATIONS FOR TESTING
Suspicion of primary aldosteronism
Manifestations: hypertension (consistently >150/100 mmHg or treatment resistant), hypokalemia, metabolic alkalosis

Before testing
- Attempt to correct low potassium
- Encourage liberal sodium intake
- Withdraw agents that significantly affect ARR (eg, potassium-wasting diuretics, licorice root products, etc.) for at least 4 wks

ORDER
Aldosterone-renin activity ratio
OR
Aldosterone-direct renin ratio
(both are best assessed in the morning)

ARR within normal range based on laboratory-defined cutoffs
Primary aldosteronism unlikely

ARR results inconclusive based on laboratory-defined cutoffs
Remove agents with a lesser effect on ARR (eg, NSAIDs, beta blockers, etc.)
Repeat ARR testing after 2 wks

ARR above normal range based on laboratory-defined cutoffs
Primary aldosteronism possible

PERFORM
One of the following confirmatory tests
- Oral sodium loading
- Saline infusion
- Fludrocortisone suppression
- Captopril challenge
AND
One or both of
- Plasma aldosterone concentration
- Urinary aldosterone concentration

Equivocal
Repeat testing in 3 mos

Nonsuppressible aldosterone
Primary aldosteronism confirmed

Suppressible aldosterone
Primary aldosteronism unlikely

Adrenal CT scan
(MRI does not add to sensitivity)

Normal, micronodularity or bilateral masses
Bilateral AVS
Lateralization
No
Yes
CONSIDER Genetic testing for GRA
Negative
IAH
Positive
GRA

Unilateral macroadenoma nodule >1 cm but <4 cm
Unilateral mass ≥4 cm
Likely adrenal carcinoma

Unilateral mass >1 cm

>35 yrs

APA or UAH: unilateral adrenalectomy

Abbreviation Key
APA  aldosterone-producing adenoma
ARR  aldosterone-renin ratio
AVS  adrenal venous sampling
CT  computed tomography
GRA  glucocorticoid-remediable aldosteronism
IAH  idiopathic adrenal hyperplasia
MRI  magnetic resonance imaging
NSAID  nonsteroidal anti-inflammatory drug
UAH  unilateral adrenal hyperplasia

Reference