Background

Primary Aldosteronism (PA, sometimes referred to as Conn’s syndrome) is a cause for endocrine arterial hypertension. Recent prevalence estimates for PA are 4.8-9.2%1,2. Accurate case detection and laterisation studies are required to determine whether PA is unilateral or bilateral disease. Unilateral disease presents a potentially curable form of hypertension following adrenalectomy. The current diagnostic algorithm3 recommends using the Aldosterone:Renin Ratio (ARR) as a screening tool, followed by confirmatory testing. We describe three cases where initial confirmatory testing using a saline infusion test (SIT) was negative for PA, which would have led to failure to progress to laterisation and surgery in 2 of the patients. On repeat testing SIT confirmed PA with a non-suppressed aldosterone (greater than 190pmol/L) following 4hrs post saline infusion.

Case 1
- 60 year old male
- Hypertension
  - BP 172/92
  - Amlodipine, Atenolol, Doxazosin, Spironolactone
- Hypokalaemia
- PA Screening: (4 agents)
  - Renin 3 mU/L
  - Aldosterone 405 pmol/L
  - ARR 135

Initial SIT

<table>
<thead>
<tr>
<th>Medications</th>
<th>Pre-Saline</th>
<th>Post-Saline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doxazosin, Amlodipine</td>
<td>543</td>
<td>&lt;70</td>
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Repeat SIT

<table>
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<th>Medications</th>
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<th>Post-Saline</th>
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<tbody>
<tr>
<td>Doxazosin, Amlodipine, Diltiazem</td>
<td>818</td>
<td>343</td>
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Variation in Aldosterone, Renin, Potassium and BP over a 5 month period

CT Findings: Left adrenal 7mm nodule
Lateralisation: Unilateral left adrenal disease
Conclusion: Unilateral left adrenal disease. Recommend left adrenalectomy.

Postoperative Outcome

- Renin 26 mU/L
- Aldosterone 74 pmol/L
- Potassium 5.6 mmol/L

Clinical
BP 151/92. On Amlodipine 10mg OD & Doxazosin MR 8mg BD.

Case 2
- 58 year old male
- Hypertension
  - BP 180/110
  - Losartan
- Hypokalaemia
- PA Screening: (Losartan)
  - Renin <2 mU/L
  - Aldosterone 532 pmol/L
  - ARR 266

Initial SIT

<table>
<thead>
<tr>
<th>Medications</th>
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<tbody>
<tr>
<td>Doxazosin, Amlodipine</td>
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<td>&lt;70</td>
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Repeat SIT

<table>
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<tbody>
<tr>
<td>Doxazosin</td>
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<td>444</td>
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Variation in Aldosterone, Renin, Potassium and BP over a 7 month period

CT Findings: Left adrenal 10mm nodule
Lateralisation: Unilateral left adrenal
Conclusion: Unilateral left adrenal disease. Recommend left adrenalectomy.

Postoperative Outcome

- Renin 47 mU/L
- Aldosterone 239 pmol/L
- Potassium 3.9 mmol/L

Clinical
BP 116/77 on Losartan 50mg OD.

Case 3
- 49 year old male
- Hypertension
  - BP 150/93
  - Verapamil
- No previous hypokalaemia
- PA Screening: (Nil agents)
  - Renin 5 mU/L
  - Aldosterone 640 pmol/L
  - ARR 128

Initial SIT

<table>
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Repeat SIT

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<tbody>
<tr>
<td>Doxazosin, Verapamil</td>
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<td>407</td>
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Variation in Aldosterone, Renin, Potassium and BP over a 7 month period

CT Findings: Left adrenal 7mm nodule
Lateralisation: Bilateral disease
Conclusion: Bilateral disease. Recommend medical management.

Medical Outcome

Clinical
BP 112/79 on Eplerenone 50mg OD.

Conclusion

- Reliance on single timepoint testing may lead to failure to proceed to confirmatory testing due to aldosterone level variability in PA.
- Repeat testing should be considered in patients with a high pre-test probability for PA (young onset or refractory hypertension, unprovoked hypokalaemia, adrenal adenoma) who have a negative initial SIT.

References