

Early post-operative aldosterone concentration can be used to assess outcome from adrenalectomy in aldosterone producing adenoma

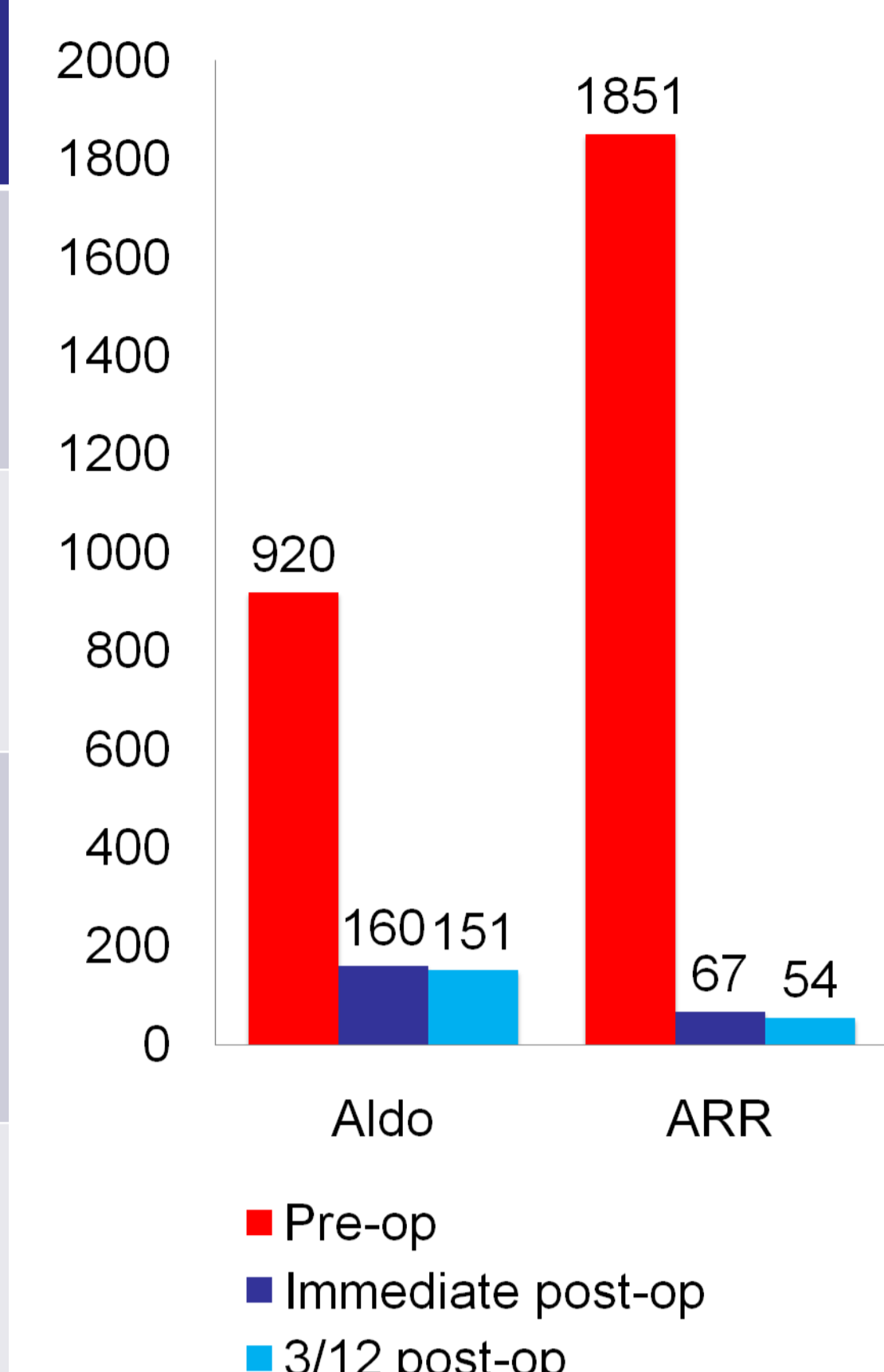
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Introduction

- Primary Hyperaldosteronism (PHA) accounts for 5-13% of all hypertension and up to 20% of resistant hypertension
- Aldosterone producing adenomas (APA) account for 60% of PHA and surgical resection can be curative
- No consensus on the need for and duration of follow up after adrenalectomy for APA
- Acute effects of resection of APA on renin-aldosterone axis have not been reported

Aim of study: To assess immediate effect of unilateral adrenalectomy for APA on serum potassium, renin and aldosterone levels

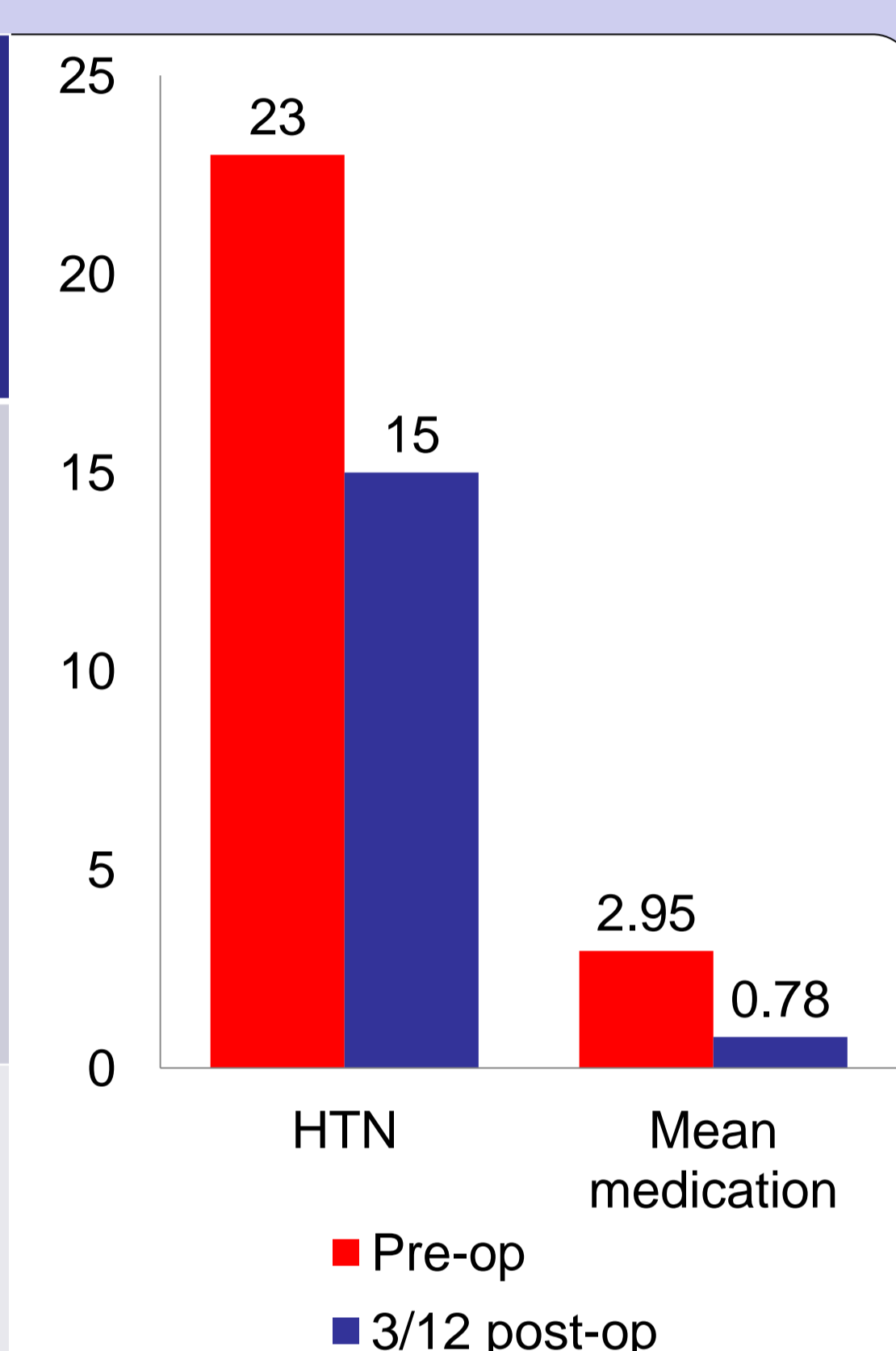
Mean±SD	Pre-op	Immediate post-op	3/12 post-op
Potassium mmol/l (3.5-5)	2.8±0.3	4.1±0.5	4.5±0.5
Aldosterone pmol/L (100-450)	930±461	160±120	151±88
Renin mU/L (5.4-30)	2.3±2	6.3±5.5	17.8±18
ARR	1851±1645	67±110	54±85



Methods

- Prospective study, data collected from inhouse databases- Diabeta3 and Electronic Patient Record
- All patients who underwent unilateral adrenalectomy between 2006 and 2015 for PHA
- PHA was defined as ARR [Aldosterone (pmol/L) : Renin (mU/L) Ratio] >200
- Serum potassium, renin and aldosterone levels measured between 24-48 hours post surgery and again after 3 months
- We compared pre-operative and post-operative biochemical values, blood pressure control and anti-hypertensive medications required

	Pre-operation	3/12 post-operation
History of HTN	23 patients (100%)	15 patients (65%) Cured of HTN 35%
Mean number of Medications	2.95	0.78



Results

- 23 adult patients, 10 Male and 13 Female
- Mean age at surgery 49.1; Range 25-72 yrs
- All had HTN and hypokalaemia at presentation
- 2 patients presented with acute malignant HTN
- Mean adenoma size was 1.71cm
- 8 were on right side and 15 on left side
- Histology confirmed adenoma in all 23 patients

In our cohort:

- 8 (35%) were cured of HTN
- 15 (65%) had normal ARR and potassium but remained hypertensive
- On average they needed less than one anti-hypertensive
- Pre-operative ARR was significantly higher in the cured subgroup compared with uncured subgroup (2638 v 1159 pre v post-op)

Immediately post surgery:

- 19 (83%) were normokalaemic, 3 (13%) hypokalaemic and 1 (4%) hyperkalaemic
- 20 (87%) had normal ARR

After 3/12 post surgery:

- 21 (91%) were normokalaemic and 2 (9%) were hyperkalaemic
- 23 (100%) had normal ARR

Discussion

- There is a considerable research and clinical guidance literature focussing on PHA, but largely devoted to epidemiology, diagnosis and management options of PHA with little information on clinical outcome and algorithms for follow-up post-adrenalectomy
- Historically, successful outcome of adrenalectomy for APA has been defined as normalisation of hypokalaemia and hypertension at discharge or "at follow-up" (interval to follow-up not defined)
- Immediate post operative ARR is a good indicator of cure
- We advocate that all patients be followed-up within 10-12 weeks post-adrenalectomy for assessment of BP, serum potassium and ARR. Anti-hypertensive and potassium-sparing medications should be withheld after surgery to allow reliable clinical and biochemical assessment at follow-up. In cases where it is not considered safe to completely discontinue antihypertensives the ARR could be checked before medications are reinitiated pre-discharge.
- As essential or "fixed" hypertension may coexist with PHA, the BP alone may under-estimate surgical cure rate. Post-operative normalisation of ARR will support definitive cure of PHA.