



<b>Title</b>	<b>Non-Pharmacological treatment of hypertension</b>
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### G-CP-3

#### Plasma Renin and Aldosterone in Patients with Hypertension before Treatment

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**Background:** Response to different antihypertensive drugs is affected by the status of the renin-angiotensin system (RAS), so we studied the renin and aldosterone levels in hypertensive patients.

**Methods:** 28 newly-diagnosed untreated hypertensive patients (15 men, 13 women; age [mean  $\pm$  SD]  $45 \pm 13$  years, range 24-73; blood pressure  $141 \pm 13/95 \pm 8$  mmHg) were studied. None had hypokalaemia, renal artery stenosis, heart failure or other oedematous conditions. Patients were on their usual diet, which contained  $186 \pm 58$  mmolNa/day and  $48 \pm 15$  mmolK/day. Venous blood was taken according to a strict protocol after prolonged rest in a supine position. Plasma renin activity (PRA) and aldosterone (ALDO) were measured. These were repeated after 3 months in 15 patients to assess reliability. The reference ranges in our laboratory are 0.68-1.36 ng/mL/hr for PRA and 28-444 pmol/L for ALDO.

**Results:** Mean PRA was  $1.07 \pm 0.82$  ng/mL/hr. 12, 5 and 11 patients (43%, 18% and 39%) had a PRA below, within and above the reference range respectively. PRA was not related to gender and the decrease with age is small ( $r = -0.29$ ,  $p = 0.14$ ). Mean plasma ALDO was  $186 \pm 97$  pmol/L. The ALDO in all patients were within the reference range. Plasma ALDO was not related to gender but was negatively related to age ( $r = -0.55$ ,  $p = 0.003$ ). Repeated measurements of PRA and ALDO were correlated (PRA  $r = 0.66$ ,  $p = 0.008$ ; ALDO  $r = 0.47$ ,  $p = 0.05$ ).

**Conclusions:** Chinese hypertensive patients are heterogeneous in terms of their renin status and there was a trend towards lesser activation of the RAS in older hypertensive patients. Inhibitors of the RAS may be less effective in such patients but more effective in the young.

### G-CP-4

#### Non-Pharmacological Treatment of Hypertension

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**Background:** Non-pharmacological treatment is the preferred initial step in the management of mild hypertension. We compared its efficacy with drug treatment.

**Methods:** Thirty-six patients (M:F, 18:18; age  $45 \pm 12$  yrs) with untreated mild essential hypertension were randomised after a placebo run-in period to drug treatment (with hydrochlorothiazide 25 mg daily [ $n = 12$ ] or metoprolol 100 mg daily [ $n = 8$ ]) or non-pharmacological treatment (lifestyle modification including a low-fat, low-salt, high fibre diet, weight control, smoking cessation, moderating alcohol intake and regular exercise) for 6 months. Additional drugs were allowed after 12 weeks if the blood pressure was not controlled. Left ventricular mass index (LVMI) was determined by echocardiography.

**Results:** In the non-pharmacological group, there was a significant decrease in sodium intake ( $43 \pm 14$  mmol/day) and body fat ( $1.5 \pm 0.7\%$ ), but the decrease in body mass ( $0.9 \pm 0.4$  Kg) was small.

	N	Diastolic pressure		Systolic pressure		LVMI	
		baseline	final	baseline	final	baseline	final
non-pharmacological	16	$96 \pm 2$	$92 \pm 2$	$141 \pm 4$	$136 \pm 4$	$127 \pm 8$	$119 \pm 6$
pharmacological	20	$95 \pm 1$	$83 \pm 2^*$	$138 \pm 3$	$122 \pm 3^*$	$132 \pm 8$	$124 \pm 7$

\* $P < 0.05$

**Conclusion:** Non-pharmacological treatment reduces blood pressure slightly, but to a lesser extent than antihypertensive drugs. It can therefore be used in patients with very mild hypertension. In patients with more severe hypertension, non-pharmacological treatment should be implemented in conjunction with antihypertensive medications.