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CYP11B2 polymorphism affects the aldosterone/renin ratio?

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Background

Nowadays it is believed that primary aldosteronism (PA) is the most frequent cause of secondary hypertension and reaches 10% of whole hypertensive population. Moreover, because of easier access to imaging tests such as ultrasound or computed tomography the number of incidentally detected adrenal tumours progressively increases, reaching 8%.

According to the guidelines of the Endocrine Society screening test in PA is to determine the aldosterone-renin ratio (ARR). There is no consensus about the cut-off point of this test. The activity of the mineralocorticoid hormone may be changed by polymorphism of aldosterone synthase gene (CYP11B2) e.g. in promoter-344T/C region.

Aim

Aim of this study was to find differences in baseline plasma aldosterone concentration (PAC), plasma renin activity (PRA), aldosterone – renin ratio (ARR) and plasma aldosterone concentration post saline infusion suppression test (SIST) in genotypes of CYP11B2 -344T/C (TT, TC, CC)

Subjects and methods

The study group consisted of 151 patients who were diagnosed because of a suspicion of primary aldosteronism. All patients were hypertensives with adrenal incydentaloma imaged by computer tomography.

Genotyping was performed by Real–Time PCR method. PRA and PAC were determined by radioimmunoassay method.

Normality data distribution was checked by Shapiro – Wilk test. The significance of differences between the groups was evaluated through Student's t-test.

Results

Table 1. Comparison between TC and TT in relation to hormonal reults

mean	TC	TT	t	p value
PRA	7,63575	0,8133	0,649618	0,517318
PAC	16,69812	18,2340	-0,544151	0,587460
ARR	79,31266	107,3633	-0,671502	0,503348
SIST	4,53378	7,0404	-0,955678	0,341635

Table 2. Comparison between TC and CC in relations to hormonal results

mean	TC	CC	t	p value
PRA	7,63575	1,05382	0,705684	0,481800
PAC	16,69812	15,51066	0,469377	0,639682
ARR	79,31266	37,83947	1,312729	0,191888
SIST	4,53378	2,50931	1,048009	0,297136

Table 3. Comparison between CC and TT relations to hormonal results

mean	CC	TT	t	p value
PRA	1,05382	0,8133	0,71472	0,477305
PAC	15,51066	18,2340	-0,88698	0,378309
ARR	**37,83947**	**107,3633**	**-2,01063**	**0,048453**
SIST	2,50931	7,0404	-1,75779	0,084783

Conclusions

➤ Despite higher ARR in patients with TT genotype in comparison to those with CC genotype, PAC and PRA values remain comparable.

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Adrenal 1

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