

DIFFERENCES IN RENAL FUNCTION IN MALE AND FEMALE PREHYPERTENSIVES

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Objective:

Prehypertension is characterized by an increased cardiovascular and renal risk. Our aim was to analyze parameters of renal function in prehypertensive men and women.

Methods:

We enrolled 689 subjects (409 females and 280 males). Blood pressure (BP) and heart rate (HR) were measured following ESH guidelines. Fasting blood samples were drawn for glucose (FBG), insulin, creatinine and lipids measurement. Urine samples were taken for albumin, alpha1 microglobuline and sodium measurement, alpha1microglobuline/creatinine ratio (A1CR) and albumin/creatinine ratio (ACR) were calculated. Glomerular filtration rate (eGRF - MDRD), HOMA index, and BMI were also calculated. Renal ultrasound was performed. Subjects were divided in three groups according to the BP – group I - optimal BP ($\leq 120/80$ mmHg), group II - prehypertension (130-138/80-85 mmHg), group III - stage I hypertension (140-159/90-99mmHg).

Median value	A1CR	ACR	Albumin/urin	BMI	eGFR	FBG	HOMA	Sodium/urine	CHOL	LDL	TG	AGE	HR
Males	4.37	4.09	6.47	26.8	84.6	5.1	0.45	170	5.6	3.5	1.60	42.0	75.0
Females	4.78	5.00	6.54	25.7	78.2	5.0	0.44	142	5.2	3.1	1.14	43.5	75.5
p value	0.604	0.007	0.931	0.079	0.003	0.490	0.490	0.007	0.024	0.009	0.001	0.880	0.253

Table 1. Median values of measured parameters and p values

Results:

There were 209 prehypertensive subjects (115 males and 94 females). We failed to find differences in age, FBG, HOMA index and HR between men and women ($p > 0.05$). However, prehypertensive men had significantly higher values of total cholesterol, LDL, triglycerides ($p < 0.05$). There were no differences in A1CR and albuminuria between men and women ($p > 0.05$). However, women had higher values of ACR and lower values of eGFR ($p < 0.05$). Prehypertensive men excreted more sodium than women.

Conclusions:

Observed differences in eGFR and ACR between men and women might point on earlier renal damage in women. However, in women ACR values could be influenced by lower values of urine creatinine and eGFR based on MDRD equation probably underestimates true GFR. This should be taken into account not only in research but also in everyday clinical work.

