IS RENAL RESISTIVE INDEX GENDER DEPENDENT IN CKD PATIENTS?

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BACKGROUND

Since high renal resistive index (RRI) correlates with atherosclerotic organ damage and the prevalence of cardiovascular (CV) disease varies according to age and gender (higher in men prior to the fifth decade of age, balanced in the sixth decade, and greater in women thereafter), we aimed to analyze the RRI gender differences in chronic kidney disease (CKD) patients.

METHODS

Seventy-eight stable, non-dialysis CKD patients over 50 years old, with known history of systemic atherosclerosis (50% male, median age 70 [65-73] years, and eGFR 33.9 [30.4-37.3] ml/min) were prospectively enrolled over a 8 months period in this cross-sectional, single-center study. Subjects with obstructive nephropathy and valvular heart disease were excluded. Markers of atherosclerosis (carotid intima-media thickness - IMT by ultrasound, abdominal aortic calcification score - ACS according to Kaupilla on X-ray and ankle-brachial index - ABI by the waveform device VaSera), arterial stiffness (cardio-ankle vascular index – CAVI, VaSera), and biochemical parameters (lipid profile, serum calcium, phosphate, albumin and C-reactive protein – CRP) were also assessed.

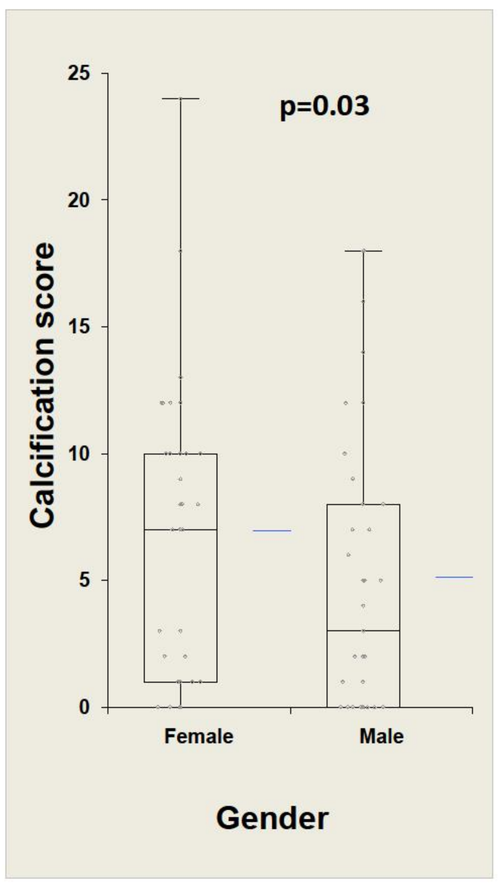
RESULTS

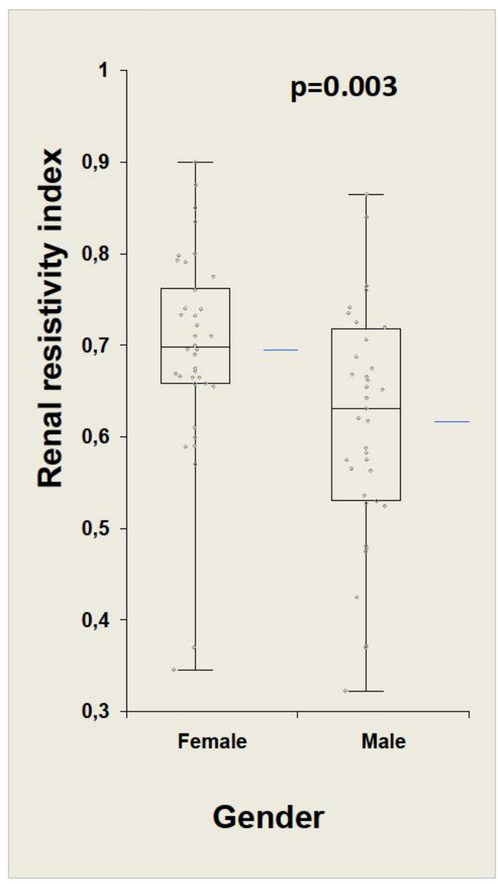
Primary kidney disease was not associated with either female or male group (p=0.2). No differences in regard of age and eGFR were observed between women and men. The female group had higher total serum cholesterol and HDL-cholesterol, but lower CRP. All the other investigated traditional CV risk factors and biochemical parameters were similar between the studied groups.

Among the atherosclerosis and arterial stiffness markers, only the ACS was increased in women. In this group, higher RRI values were also found.

The relationship between RRI and CV risk factors was further investigated by multiple regression analysis. Only gender seemed to influence significantly and independently the RRI (F=5.22, p=0.02). No relationships with age, smoking, body mass index, atherosclerotic indices (IMT, CAVI, ACS), lipid profile, CRP were found.

	Male (n=36)	Female (n=37)	p
Age (years)	67 [62-73]	70 [66-75]	0.1
eGFR (mL/min)	34.5 [29.2-39.9]	33.2 [28.7-37.7]	0.7
Total serum cholesterol (mg/dL)	171 [153-183]	189 [167-214]	0.02
HDL-Cholesterol (mg/dL)	49.1 [45.9-54.4]	59.1 [49.9-64.3]	0.02
C reactive protein	7 [3-19]	3 [2-6]	0.008





CONCLUSIONS

With the reserve of small cohort, single center, and cross-sectional design – our study shows that women have higher RRI and ACS than men, despite a lower inflammatory status and an elevated HDL-cholesterol.

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