HIGH RENAL INDEX VALUES – RELIABLE PREDICTOR FOR HYPERTENSIVE NEPHROANGIOSCLEROSIS AND EARLY CARDIAC INVOLVEMENT IN HEALTHY INDIVIDUALS?

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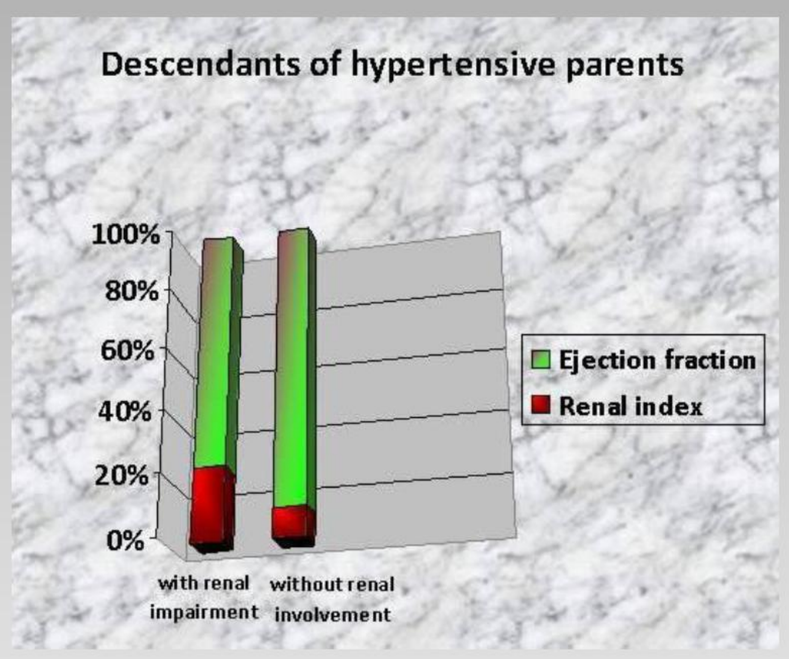
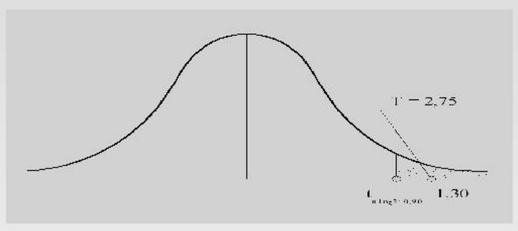
OBJECTIVES

Many trials documented that renal index (RI) is elevated in descendants of hypertensive patients before the hypertension onset and that high RI values represent a predictor of the future high blood pressure values. In essential hypertensive patients, it is hard to predict nephropathy without genetic studies pointing the renal susceptibility genes. The aim of our study was to determine an easier modality to establish the risk of nephrosclerosis in hypertensive individuals' descendants. We conducted a study to asses the importance of RI in prediction of renal susceptibility in the evolution of essential hypertension.

METHODS

65 healthy subjects, descendants of patients with documented essential hypertension for more than 15 years, underwent renal Doppler ultrasonography. The subjects were divided in two groups: 32 offsprings of patients with hypertensive nephrosclerosis (various grades of chronic renal disease) = group A; 33 offsprings of hypertensive patients with no renal impairment (normal GFR, no microalbuminuria) = group B. The two groups were matched for age and sex. RI was measured in all offsprings and echocardiography was performed in all parents (hypertensive patients with or without renal impairment).





RESULTS

Mean descendants groups age 28 +/- 2.8 years, mean systolic BP 116 +/-5 mmHg, mean diastolic BP 71 +/-4 mmHg. Mean RI (group A and group B) 0.68 +/-0.05. Mean RI was 0,79 +/-0.03 in group A, significantly higher ($p < 0.001$) than mean RI 0,62 +/- 0.02 in group B. Mean EF (ejection fraction) measured in hypertensive patients was 46.4 +/-5.2 %, with a value of 39.3+/-1.2 % in parents of group A (patients with renal impairment) and 49.2 +/- 1.3 % in parents of group B (hypertensive subjects without renal involvement). High values of RI in the descendants strongly correlate with low EF in the hypertensive parents ($p < 0.001 < \alpha = 0.05$).

CONCLUSIONS

Our study supports the hypothesis that significant high levels of RI preexist in healthy descendants of patients with hypertensive nephropathy. Inherited high RI is correlated with a higher risk for renal involvement in the evolution of essential hypertension, but also with a poor cardiovascular outcome. We assumed that patients with high RI represented healthy descendants to whom this characteristic was genetically transmitted (they also had a high value of RI before the onset of hypertension). In addition, the association of hypertension with preexisting renal vascular impairment is a predictor for early and severe cardiovascular complications. Still, further larger clinical trials are needed to confirm our findings for a worldwide use of this easier modality of assessment.