COMPARATIVE BENEFIT OF VASCULAR STIFFNESS AND KIDNEY DAMAGE PARAMETERS FOR RISK STRATIFICATION IN HYPERTENSIVE PATIENTS

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OBJECTIVES

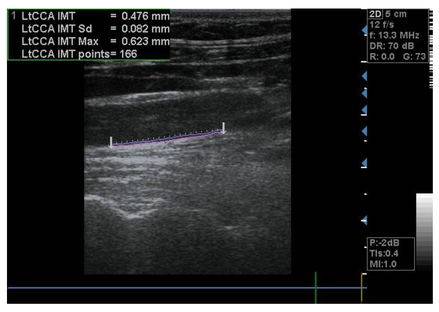
❖ To compare non-invasive measurements of arterial stiffness with serum markers of renal damage for risk stratification in hypertensive patients

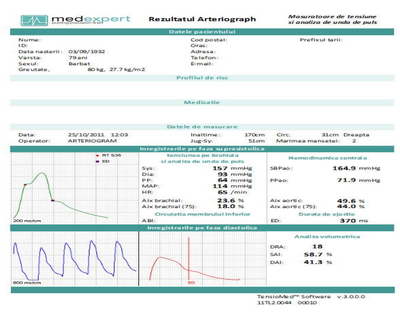
	Number of patients	AGE (years)	
		Mean age	Standard deviation
Group 1	83	58,63	8.9
Group 2	140	58,50	7,8

		SEX	
		Female	Male
Group 1	Number	43	40
	%	51,8%	48,2%
Group 2	Number	72	68
	%	51,4 %	48,6%

METHODS

Study type: prospective, on 223 hypertensive patients divided in two groups:
• Gr.1 – 83 hypertensive patients with kidney damage
• Gr.2 – 140 hypertensive patients without kidney damage
Exclusion criteria: Patients with Type 2 Diabetes Mellitus and Coronary artery disease
Parameters:
Uric acid - determined by colorimetric method (URICASE/PAP):
Albuminuria - measured in urine sample with dipstick
Serum Creatinine – using Jaffe reaction without deproteinisation
GFR - calculated using CKD-EPI formula
Intima Media Thickness (IMT) - using Doppler for measuring three segments according to Mannheim Consensus
Pulse Wave Velocity (PWV) – arterial rigidity was measured using Medexpert Arteriograph device





Reference values uric acid:
♀:148-357 µmol/l (2,5-6,0 mg/dl)
♂: 200-416 µmol/l (3,4-7,0 mg/dl)

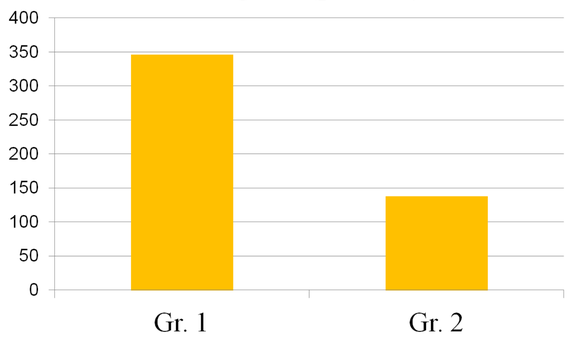
Normal Albuminuria <30mg/24h
Moderately increased 30-300mg/24h
Severely increased >300mg/24h

sCr: ♀: 0,6 - 1,0 mg/dL
♂: 0,8 - 1,3 mg/dl

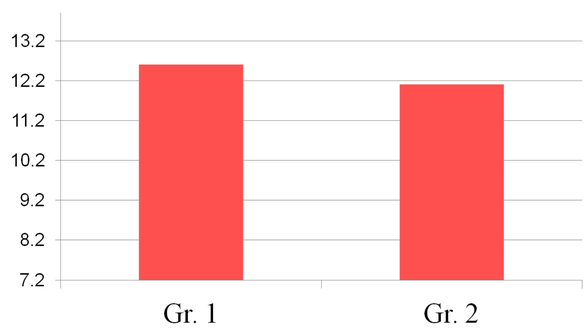
Statistical analysis SPSS v.13 software, comparison by ANOVA and post-hoc Newman-Keuls or Scheffe tests

RESULTS

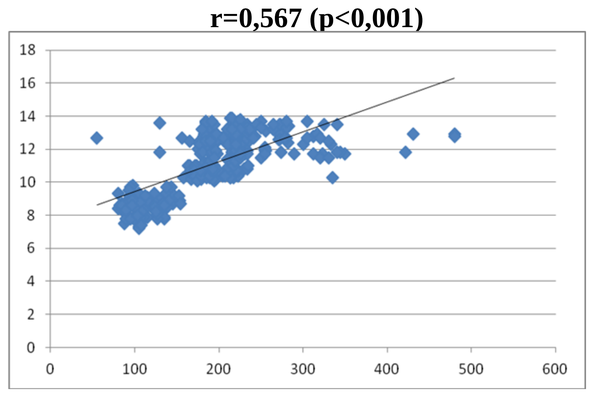
Albuminuria
346,81±0,81 mg/24h vs 138,98±0,75 mg/24h (p<0,001)



PWV
12.6±0.73 m/s vs. 12.1±0.98 m/s (p<0,001)

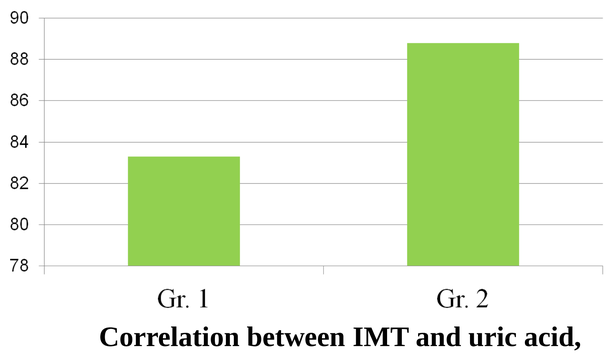


Correlation between PWV and Albuminuria
r=0,567 (p<0,001)

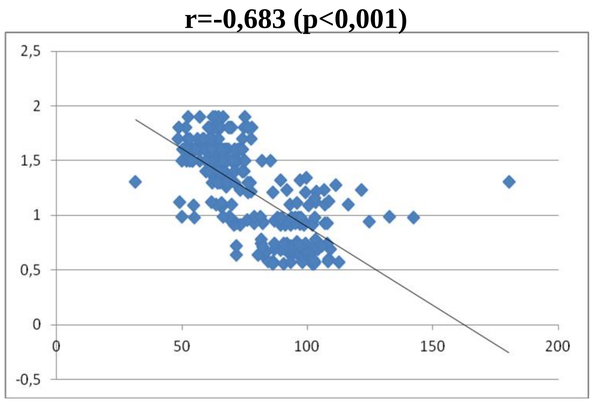


IMT , 1±0,07 mm vs. 1 ±0,05 mm

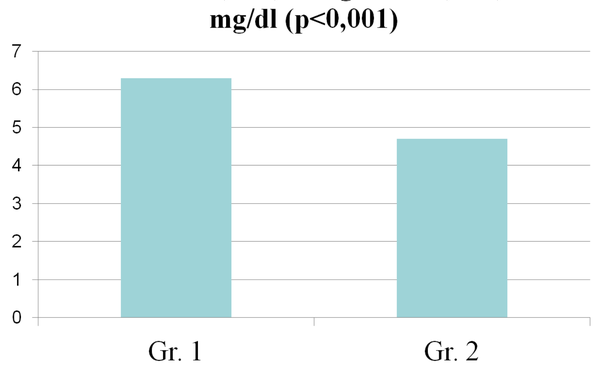
GFR
83,3 ± 24,01 ml/min/1,73 mp vs 88,8±21,73ml/min/1,73mp (p<0,001)



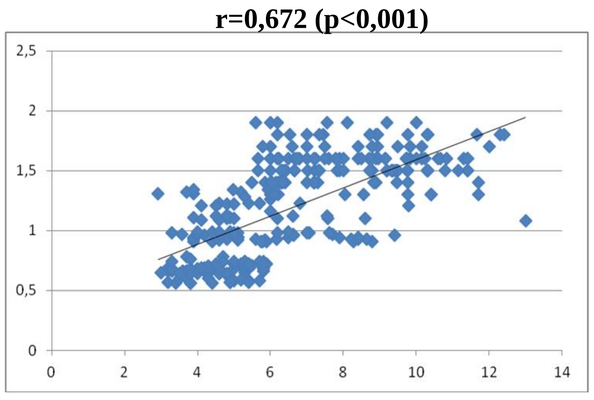
Correlation between IMT and GFR
r=-0,683 (p<0,001)



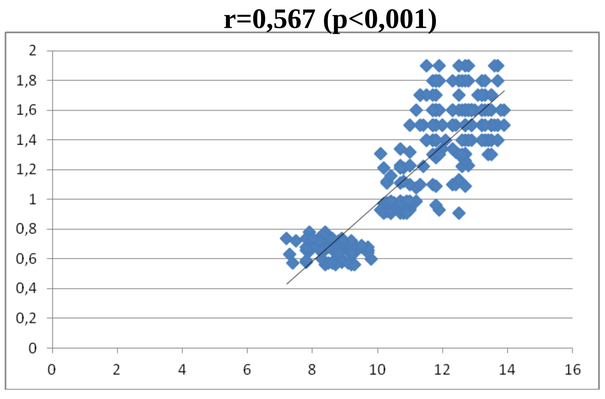
Uric acid 4,7±1,19 mg/dl vs. 6,3±1,85 mg/dl (p<0,001)



Correlation between IMT and uric acid, r=0,672 (p<0,001)



Correlation between PWV and IMT r=0,567 (p<0,001)



CONCLUSIONS

❖Risk stratification in hypertensive patients can be obtained using parameters of kidney damage (GFR, serum uric acid, moderately increased albuminuria) and non-invasive methods for arterial stiffness (PWV, IMT).
❖Renal parameters expressing end-organ damage seem to be more accurate in risk stratification than measurements of vascular stiffness, allowing early detection of high risk patients.

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