INTRARENAL HEMODYNAMICS IN ARTERIAL HYPERTENSION AND HEART FAILURE WITH PRESERVED EJECTION FRACTION

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Introduction:

Traditional cardiovascular risk factors in the general population are usually correlated with the prognosis in patients with heart failure with preserved ejection fraction (HFpEF).

Keywords:

intrarenal hemodynamics, heart failure with preserved ejection fraction, arterial hypertension

Purpose:

The aim of the present study was to assess the implications of intrarenal hemodynamics (IRH) in HFpEF.
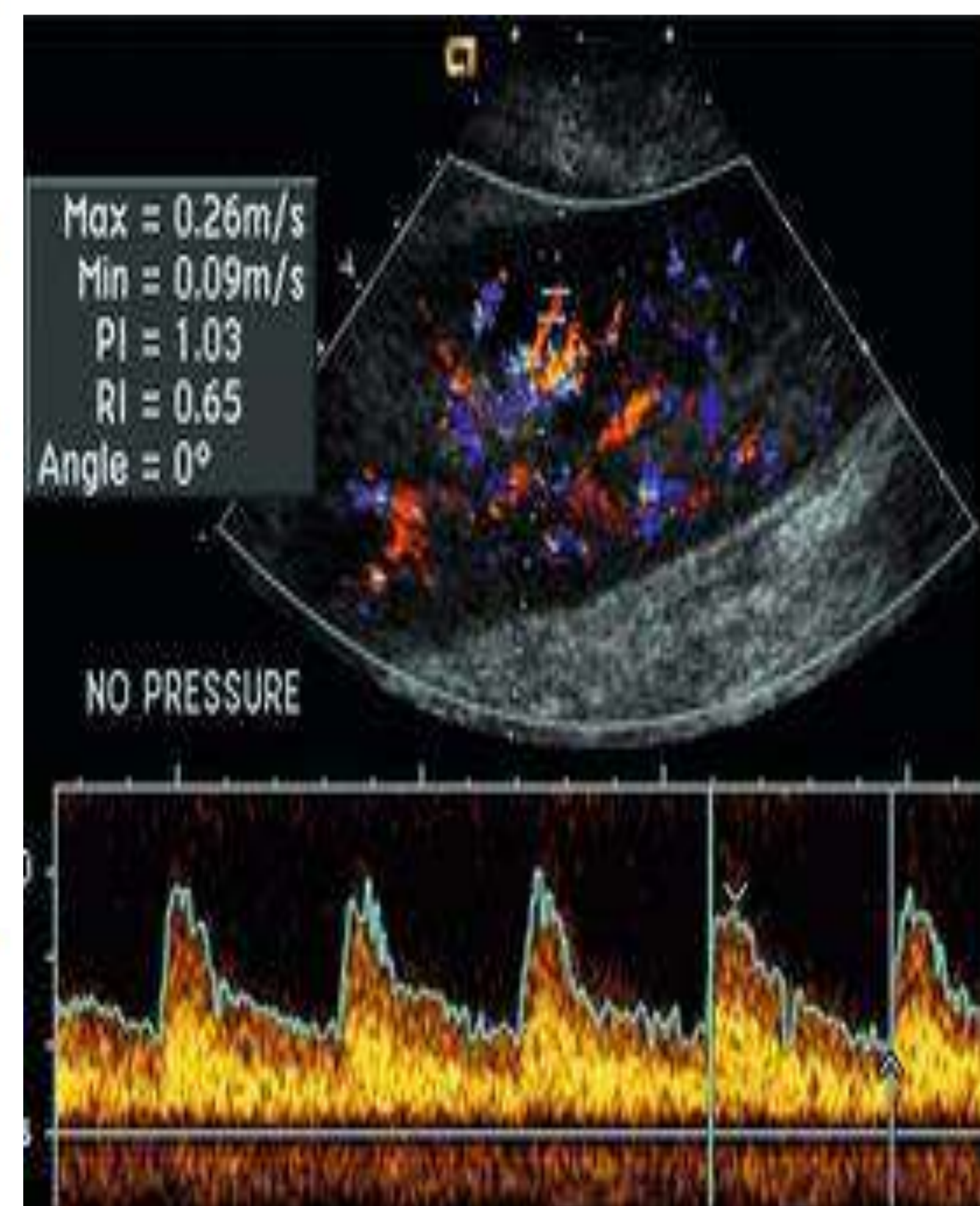
PATIENTS CHARACTERISTICS	
PARAMETER	MEAN VALUE
AGE	45,26 ± 5,2 years
RRI	0,6672 ± 0,0452
RPI	1,2533 ± 0,178
AT	66,68 ± 2,324
24h SBP	146,12 ± 13,96 mmHg
24 h DBP	86,59 ± 6,78 mmHg
PP	59,10 ± 22,90 mmHg.
24h HR	75,14 ± 26,86 beats/minute

Material and methods:

The research included 60 patients with HFpEF aged 18-79 years, All subjects underwent physical examination, 24-hours ambulatory BP and electrocardiography monitoring, echocardiography, intrarenal Doppler ultrasound, obtaining the following IRH parameters: renal resistive index (RRI), renal pulsatile index (RPI), acceleration time (AT).

Results:

The analysis of BP values showed that 22% (13 pts) had stage I HTN, 48% (29 pts) - stage II HTN and 30% (18 pts) – stage III HTN , whereas the mean age of HTN onset was 40,55 ± 10,27 years, the mean HTN duration being of 9,57 ± 7,12 years, mean ejection fraction 56 ± 4,562%, mean NT-proBNP levels 654 ± 93 pg/ml. There was a positive association of only IRR with ambulatory 24 hours SBP (r = 0,359, p<0,01), mean daytime SBP (r = 0,260, p<0,05) ambulatory PP (r = 0,266, p<0,01), age (r = 0,253, p<0,01), left ventricular mass (r = 0,459, p<0,001) and relative wall thickness (r = 0,293 p<0,01).

Conclusions:

In addition to local renal vascular properties, the central hemodynamic factors significantly influence the IRH in HFpEF. IRH is the result of a complex interaction between renal and systemic vascular factors useful in assessment of a large spectrum of cardiovascular conditions.