

# CIRCULATING RENALASE AND CATECHOLAMINES IN HYPERTENSIVE PATIENTS

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## OBJECTIVES

The aim of the study was to estimate circulating renalase, dopamine and norepinephrine levels in 121 patients with primary hypertension and to compare the renalase and catecholamine concentration in the study group and in control group. We also correlated the serum renalase and catecholamine concentration in patients with primary hypertension and in control group as also renalase with laboratory and clinical parameters were established.

## METHODS

121 patients with primary hypertension were enrolled in the study (55 females, 66 males), aged 19-85 years (median age 55 years). 27 volunteers without hypertension, who have never been treated for cardiovascular diseases were enrolled to control group. Blood from peripheral vein was collected from the study subjects in order to measure serum renalase, norepinephrine and dopamine concentration. The office, home and 24-hour ambulatory blood pressure measurements, as also some echocardiographic parameters together with the information about medical therapy were collected.

## RESULTS

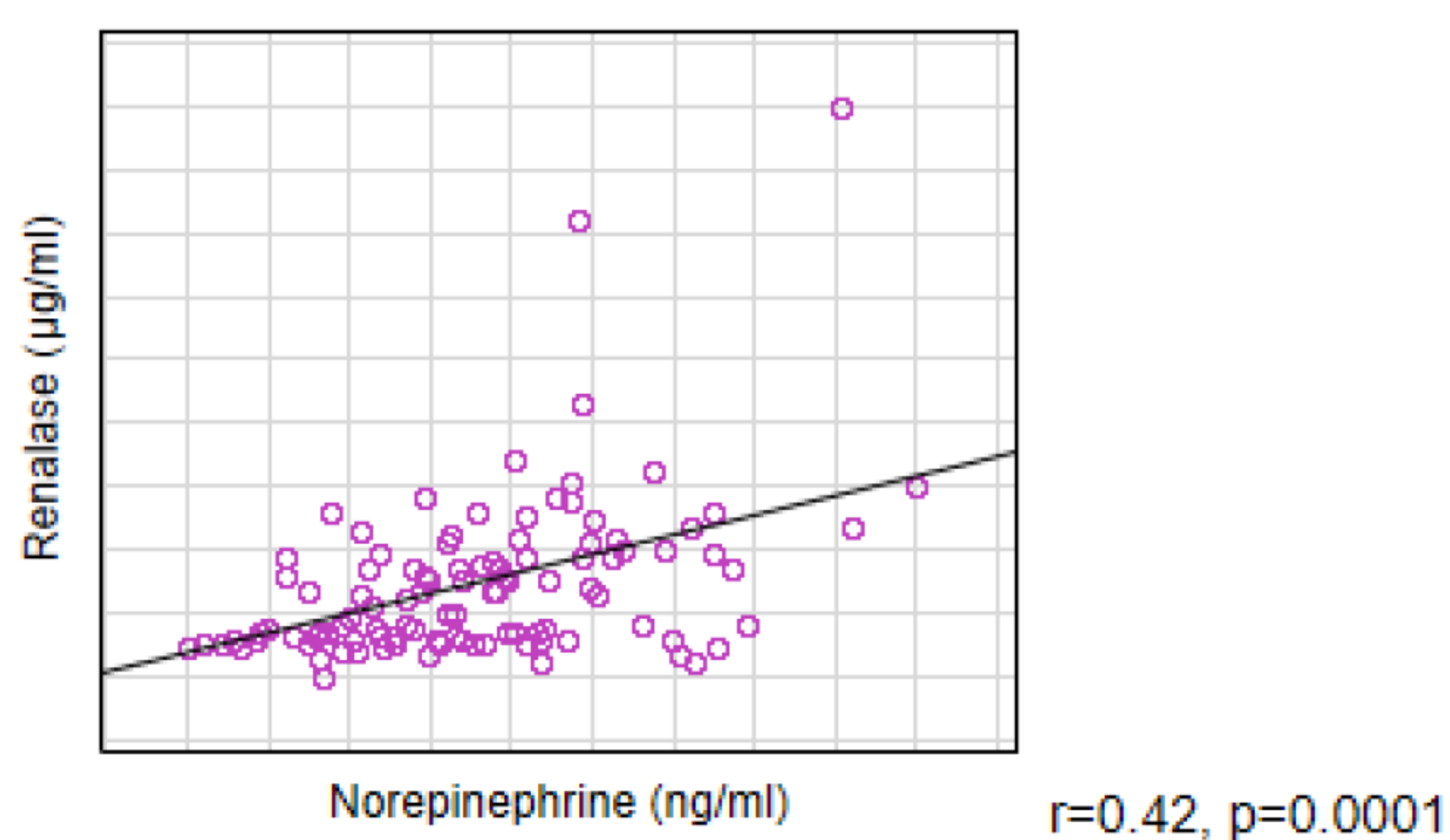
	Hypertensive patients (N=121)	Control group (N=27)	p
Renalase (µg/ml)	Me=9.57 (0.045;62.05)	Me=3.83 (2.65;5.34)	0,0001

The median office blood pressure in the study group was significantly higher than the median home blood pressure measurements (146.86 mmHg vs. 135/80 mmHg,  $p < 0.018$ ). The renalase concentration in patients with primary hypertension was 9.57 µg/ml and was statistically significantly higher compared to median renalase concentration in the control group (Me = 3.83 µg/ml). In the study the increased renalase level was observed in patients with hypertension with coexisting coronary artery disease and with creatinine clearance  $< 60$  ml/min/1.73m<sup>2</sup>. The renalase concentration correlated with decreased ejection fraction ( $r = -0.28$ ,  $p = 0.003$ ).

In the study the median norepinephrine concentration in patients with primary hypertension (Me = 0.9 ng/ml) was significantly higher in comparison to control group (Me = 0.38 ng/ml). The renalase concentration correlated with norepinephrine concentration in serum of the study population ( $r = 0.42$ ,  $p = 0.0001$ ).

In the study group with primary hypertension the plasma dopamine concentration was significantly lower than in the control group (Me= 5.83 pg/ml vs 143.23 pg/ml,  $p = 0.0001$ ). There was no correlation between serum renalase and plasma dopamine concentration in study group.

Correlation between serum renalase and norepinephrine levels in patients with primary hypertension



## CONCLUSIONS

Serum renalase concentration in patients with primary hypertension was statistically significantly higher in comparison to the control group. It correlated positively with serum norepinephrine concentration but there was no correlation between renalase and dopamine concentration in study group. Statistically significant differences were observed between renalase concentration and presence of coronary artery disease or decreased glomerular filtration rate and the negative correlation between renalase concentration and ejection fraction of left ventricle.

Already published studies do not clearly position renalase in the pathogenesis of hypertension. This protein needs further clinical and experimental studies.

