IS THERE AN AGE INFLUENCE ON RENALASE AND CATECHOLAMINES CONCENTRATION IN PATIENTS WITH HYPERTENSION?

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OBJECTIVES

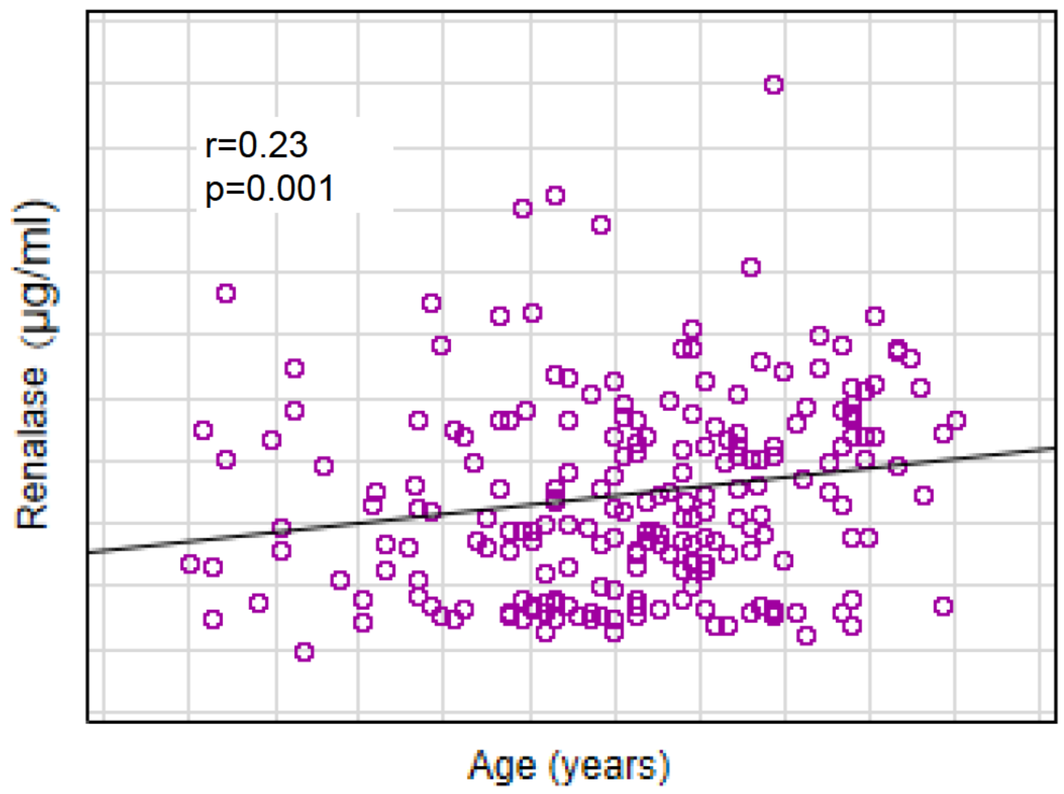
Hypertension is highly prevalent among older adults and remains the leading risk factors for cardiovascular diseases as well kidney failure. There are many pathophysiological aspects leading to high blood pressure in this population. In older males plasma norepinephrine concentration is approximately 66% higher than that observed in younger men. This is attributable to a significant reduction in the rate of clearance of norepinephrine from plasma, but also to a increased sympathetic discharge directed to different organs. Renalase, secreted by the kidney and circulates in blood, may play a role in the regulation of sympathetic tone and blood pressure by catecholamines degradation.

The aim of the study was to assess the influence of age on serum renalase and catecholamines – dopamine and norepinephrine concentration and blood pressure control in a cohort of 211 patients with hypertension, including treated with haemodialysis and peritoneal dialysis.

METHODS

The study cohort was divided into two groups – according to age below and above 65 years. The group aged above 65 years contained 38% of patients and 75% of them were treated with dialysis. The serum renalase, dopamine and norepinephrine concentration were assessed as well as blood pressure control, residual renal function rate, laboratory tests and echocardiography.

Parametres	Above 65 years (N=61)	Below 65 years (N=143)	p
Renalase (µg/ml)	20.6 (1.9; 62.0)	13.14 (0.05; 49.9)	0.02
Norepinephrine (ng/ml)	0.85 (0.2; 3.9)	0.79 (0.1; 2.6)	NS
Dopamine (pg/ml)	47.7 (0.8; 352.7)	15.5 (0.1; 363.3)	0.001



RESULTS

The group of aged above 65 years had the significant higher renalase (p=0,02) and dopamine (p<0,001) concentration. Laboratory tests revealed the significant lower whole cholesterol (p=0,03) and triglicerydes (p=0,01) concentration in this population comparing to those aged below 65 years. They also had advanced abnormalities in echocardiography, like higher interventricular septum diameter (p=0,03) and less ejection fraction rate (p<0,001). Patients aged above 65 years more often suffered from diabetes and coronary artery disease. The main used hypotensive drugs in whole studied cohort were beta-blockers, angiotensin converting enzyme inhibitors (more often in group aged less then 65 years) and calcium-channel blockers (more often in group aged more then 65 years). There was the significant correlation between age and renalase, norepinephrine and dopamine concentration in whole studied population.

Parametres	Above 65 years (N=61)	Below 65 years (N=143)	p
Coronary artery disease	40% (N=25)	13% (N=19)	0.001
Diabetes mellitus	41.6% (N=25)	10% (N=15)	0.001

CONCLUSIONS

The older age had the influence on higher renalase concentration what is related to the sympathetic nervous system hyperactivity found in this population and it may have an impact on the development of cardiovascular complications.

DOI: 10.3252/pso.eu.52era.2015

ePosters supported by F. Hoffmann- La Roche Ltd.