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Dual role of kidneys in blood pressure regulation in patients with autosomal dominant polycystic kidney disease (ADPKD)

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Background and Aims: Hypertension is a common complication of ADPKD. A role of the renin-angiotensin system (RAS) has been proposed, but human studies have shown conflicting results in correlation between plasma renin activity and blood pressure in ADPKD. The aim of this study was to investigate the role of renin-angiotensin pressor and kallikrein-kinin-prostaglandins depressor systems in the development of hypertension in ADPKD.

Methods: 42 patients with ADPKD and hypertension aged 19-64 years old (mean age 39.9±2.7 years) were studied. Final diagnosis of ADPKD was based on decreased renal function signs, ultrasonography and CT. Renal angiography was performed in 16 patients in order to make a differential diagnosis of arterial hypertension to further determine pressor and depressor agent activity in renal venous blood (RVB). Renin activity, angiotensin I (ANGI) and prostaglandin (PGF2α, PGE2) content were defined using radioimmune assays and the Hestrin method for kallikrein.

Results: Results in right and left renal veins (RRV/LRV). Renin activity (ng/ml/h)–RRV:5.88±0.41;LRV:5.86±0.50;control: 02,-2,7 ANGI content (ng/ml) RRV:3.67±0.04;LRV:3.51±0.33;control: 0.5 PGF2α content (ng/ml) RRV:1.20±0.02;LRV:1.15±0.01 PGE2 content (ng/ml)-RRV:3.9±0.14;LRV:4.44±0.24 Kallikrein (mmol/l) RRV:5.22±1.02;LRV:6.77±1.2;control:4.14±0.18

Conclusions: Renin activity and ANG1 content in RVB are increased statistically identically on both sides specifying the activation of a pressor system. Normal PGF2α content also confirms the activated RAS pressor corresponding to hypertension. Kallikrein concentration, but especially PGE2 content specifies the raised synthesis of PGE2 and preserved high activity of depressor agents in this group. Thus, the obtained results have shown the role of pressor-depressor agents in the pathogenesis of hypertension where the adequate synthesis of depressor agents can explain the mild course of hypertension in ADPKD.

Biography

Voitovitch Vladimir graduated Clinical ordination on Nephrology in Centre of Urology and Kidney Transplant action in Minsk under Academic Savchenko N. E. As scientific worker defended dissertation "State of Pressor -Depresser system in patients with renal symptomatical hypertension". In 2008 worked in Bergamo 6 months on Program ISN "Early diagnostic patients with Hypertension, Diabetes, and Renal diseases. More than 70 published, participated in World Congress of Nephrology in San Francisco (2001), Toronto (2003), Rio de Janeiro, Hon Kong et all.

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