Abstract

Hypertension is a major risk factor for cardiovascular (CV) disease, and patients with primary aldosteronism (PA) - the most common endocrine cause of hypertension - have a higher incidence of CV complications. The aim of this study was to evaluate the incidence of metabolic differences and organ complications - kidney, heart and blood vessels damage in patients with essential hypertension (EH), PA and its most common forms - idiopathic hyperaldosteronism (IHA) and aldosterone-producing adenoma (APA). We found a higher incidence of metabolic syndrome and a higher incidence of metabolic abnormalities in IHA compared to APA - higher prevalence of metabolic syndrome, higher levels of triglycerides and lower levels of HDL cholesterol and thereby a higher cardiometabolic risk. Metabolic profile of patients with IHA is similar to EH in contrast to APA. Arterial stiffness was expressed as pulse wave velocity (PWV), in central arteries as carotid-femoral PWV and at peripheral level as femoral-ankle PWV. Patients with PA with comparable levels of blood pressure (BP) have higher stiffness of central elastic and peripheral muscular arteries than patients with EH. The main predictor of impaired peripheral arterial stiffness is the plasma aldosterone level. Patients with IHA have higher central arterial stiffness and a higher incidence of microalbuminuria as a marker of renal impairment compared with patients with APA. Echocardiographic evaluation of the anatomy of the left ventricle (LV) in patients with volume dependent hypertension (patients with PA and low-renin hypertension) showed greater end-systolic and end-diastolic diameter of the LV and a higher percentage of eccentric LV hypertrophy compared with patients with EH with comparable values of BP, age and gender. The most important factor influencing left ventricular remodeling in patients with PA is the volume overload as a result of aldosterone overproduction. The results of our work demonstrate higher CV and cardiometabolic risk in patients with PA, especially in patients with IHA. Specific treatment of PA aimed to decrease mineralocorticoid activity can lead in these patients to reduction of CV complications.

Keywords: arterial hypertension, primary aldosteronism, aldosterone-producing adenoma, idiopathic aldosteronism, metabolic syndrome, arterial stiffness, target organ damage