

EVALUATION OF LEFT VENTRICULAR GEOMETRY AND FUNCTION IN PATIENTS ON CHRONIC HEMODIALYSIS

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Introduction. Left ventricular hypertrophy (LVH) is a well recognized risk factor for cardiovascular morbidity and mortality, independent of age, presence of hypertension, diabetes, lipid profile disorders or smoking habits. LVH increases the risk of heart failure, myocardial infarction, cardiac arrhythmias and stroke, in both the general population and patients with chronic kidney disease (CKD). In patients with CKD stage 5 treated with maintenance hemodialysis (HD) pathophysiology of LVH is complex and includes, among others: poorly controlled hypertension, chronic anemia, arteriovenous fistula created for hemodialysis, hyperparathyroidism, hyperphosphatemia, oxidative stress associated with extracorporeal treatment, etc.

Aim. To assess the prevalence of abnormalities in structure and function of the left ventricle (LV) in patients on maintenance HD using echocardiography.

Materials and methods. Echocardiography was performed in the Echocardiography Lab of a large, tertiary, university-affiliated hospital (Provincial Specialist Hospital) using VIVID 4 echocardiography device equipped with 2.5–3.5 MHz transducer (GE Healthcare). The following ECHO parameters were assessed: LV wall thickness and chamber size, LV mass (with the calculation of left ventricular mass index), systolic function – ejection fraction, diastolic function as well as mitral valve flow using the Doppler technique. The study group comprised 56 stable HD patients (25 females, 31 males; mean age 58.4±13.0 years).

Results and discussion. Only 11 patients (17.8%) in the study group presented normal LV geometry; eccentric hypertrophy was found in 21 subjects (37.5%) and concentric hypertrophy in 19 (35.7%). LV diastolic dysfunction was identified in 40 patients (i.e., 71.4% of study group) and LV systolic dysfunction in 6 (10.7%).

Conclusions. LV geometry abnormalities in echocardiography were found in more than 70% of the studied population. The most frequent LV pathology was impaired diastolic function, present in more than 70% of patients. Advanced disorders of LV in patients on HD lead to cardiac failure or life-threatening arrhythmia.