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ABNORMAL LEFT VENTRICULAR GEOMETRY IS PRESENT IN ADULT PATIENTS WITH CHRONIC KIDNEY DISEASE AND END-STAGE RENAL FAILURE REGARDLESS OF BLOOD PRESSURE STATUS

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BACKGROUND: Cardiovascular disease is the most frequent cause of death in end-stage renal disease (ESRD) and chronic kidney disease (CKD) patients. Risk factors for cardiac diseases, including hypertension, are common in these subjects, which may explain the higher occurrence of left ventricular hypertrophy (LVH). Non-hemodynamic and neurohumoral factors other than blood pressure (BP) are also responsible for the increased left ventricular (LV) size in CKD patients. We aimed to describe and compare the LV geometry in normotensive and hypertensive CKD and ESRD patients.

METHODS: Echocardiography studies of stable adult patients with CKD and ESRD between January 2003 and November 2004 were reviewed. Patients with acute coronary syndrome, heart failure, cardiomyopathy and valvular heart disease were excluded. Parameters of LV geometry – interventricular septal thickness (IVST), posterior wall thickness (PWT) and internal dimension(LVID) — were recorded and compared between four subgroups: Group 1–normotensive CKD; Group 2–hypertensive CKD; Group 3–normotensive ESRD; and Group 4–hypertensive ESRD.

RESULTS: Fifty-five patients were included (mean age 65.67+/-13.2; 27 males, 28 females). Echocardiographic findings on LV geometry were as follows: Group 1: n=1; mean IVST = 13+/-2.49, PWT =11.72+/-1.35, LVID = 54.54+/-8.99. Group 2: n=20; IVST = 14.42+/-2.5, PWT = 12.8+/-1.96, LVID = 56.4+/-8.14. Group 3: n=9; IVST = 14.66+/-2.5, PWT = 12+/-2.61, LVID = 53.5+/-4.03. Group 4: n=7; IVST = 13.9+/-4.89, PWT = 13.6 +/-1.65, LVID = 52+/-0. There was no significant difference in LV geometry parameters among the 4 groups. Majority had evidence of LVH regardless of the presence or absence of hypertension.

CONCLUSION: There was no difference in LV geometry among normotensive and hypertensive groups. Majority of ESRD and CKD patents had evidence of LVH regardless of BP status.

Keywords: left ventricular hypertrophy, chronic renal failure, hypertension