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### Cardiac Abnormalities in the Iranian Pediatric and Adolescent Population with Chronic Renal Failure

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#### Abstract:

Background: It has been well documented that left ventricular hypertrophy (LVH) is an independent factor for cardiac death in children. The epidemiologic information reveals that there is a very high prevalence of LVH in children with chronic renal failure (CRF). The purpose of this study was to evaluate the existence of left ventricular hypertrophy, its severity and other cardiac abnormalities in children and young adults with chronic renal failure (CRF), end stage renal disease (ESRD) on hemodialysis (HD) or post renal transplantation (RTx). Methods: Sixty-three patients including 31 females and 32 males aged 1 to 18-year-old with defined causes for renal damage were enrolled in the study. Study patients were distributed in three groups: HD (n=45), CRF (9) and RTx (9). LVH and degree of hypertension were compared with an age and sex-matched control group (63 normal individuals). Left ventricular mass indexed for height (LVM/Ht and LVM/Ht<sup>2.7</sup>) and body surface area (LVM/BSA), and other related parameters were determined by echocardiography in both groups. Laboratory investigations were carried out at a reference laboratory for the study group. Results: The index of LVM/BSA in CRF group was more ( $r=0.765$ ) than the control group. The HD patients had significantly higher LV systolic and diastolic dimensions. Analysis of variance (ANOVA) showed the influence of groups on subject score on the LVM. A significant effect of groups on the mean score on the LVM was noted. An important finding of this study was the correlation between serum creatinine and LVM in the HD and RTx subjects by both linear and multiple regression analyses. There was also significant difference amongst groups with respect to blood parameters, which is discussed. Conclusion: This study demonstrates that left ventricular hypertrophy and cardiac abnormalities are frequent findings in children with renal impairment or ESRD. The degree of hypertrophy is often severe, particularly following transplantation. Further studies to clarify the relationship between biochemical disturbances and ventricular abnormalities are suggested.

#### Keywords:

[Cardiac abnormalities](#) , [Children and young adult](#)

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