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Delayed myocardial enhancement in pediatric hypertrophic cardiomyopathy: correlation with LV function, echocardiography and demographic parameters

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Statement of the Problem: Hypertrophic cardiomyopathy (HCM) is the most common inheritable cardiac disorder, with an estimated prevalence of 1:500. It has many complications that may be severe which include arrhythmia and sudden death that represents the most frequent cause of sudden cardiac death in the young. Our aim is to detect the presence of fibrosis by cardiac magnetic resonance imaging (CMR) in the pediatric age group and study its advantage over two dimensional echocardiography correlate CMR findings with other demographic and LV functional parameter.

Methodology & Theoretical Orientation: We studied 40 pediatric patients diagnosed as HCM by echocardiography. All patients were subjected to clinical examination in which the NYHA classification was determined for each patient, echocardiography and CMR. All demographic and functional parameters as well as pressure gradient across left ventricular outflow tract (LVOT) were correlated with the percentage of myocardial enhancement. The mean percentage of DE-MRI was 9.7±9. We found significant correlation between the NYHA classification and the pressure gradient across the LVOT (P=<0.001) as well as the percentage of DE-MRI (P=0.004). The percentage of DE-MRI showed positive correlation with LV myocardial mass index (p=0.042). It didn't correlate with any other demographic or LV functional cardiac parameters. A good positive correlation was detected between the percentage of DE-MRI and the severity of pressure gradient across LVOT measured by echocardiography (r=0.69 and P=<0.001).

Conclusion & Significance: We found a significant correlation between the percentage of DE-MRI in children with HCM and the pressure gradient across LVOT, NYHA classification and LV myocardial mass. This may help in further management of those patients, planning for follow up and prognosis of the disease.

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