Doppler echocardiography imaging and prognosis in children with hypertrophic cardiomyopathy.


Background: Assessment of left ventricular (LV) diastolic function by Doppler echocardiography imaging (DEI) has been reported to be useful for predicting the prognosis in patients with hypertrophic cardiomyopathy (HCM). The aim of this study was to evaluate the clinical significance of DEI parameters for prediction of cardiovascular events in children with HCM.

Methods: Retrospective analysis of 96 children, mean age 10.1±5.2yrs (ranged from 1 month to 18yrs) with HCM diagnosed from 1991 to 2013. The combined end-points were HCM-related death; resuscitated cardiac arrest; appropriate ICD discharges; admission for cardiac arrhythmias; new episode of syncope; and worsening of heart failure symptoms (NYHA class III and IV). In echocardiography mitral inflow was assessed (wave A, E, E/A ratio), left atrial dimension (LAD) in the parasternal long axis view. The values of E, A waves, E/A ratio were considered abnormal if they were lowered or raised in relation to the standards for the age of the patient. LAD was assessed with respect to the patient BSA standards.

Results: During a follow-up period mean 7.9 yrs (ranged from 3 months to 22 yrs) 38(40%) pts (group I) achieved the combined end-points while 58(60%) pts (group II) did not. The left atrium was enlarged in 68% pts in gl vs 42% in the gII (p=0.027). Children who experienced cardiovascular events had larger LAD (mean 153% of the average of the standard for BSA) compared with those who did not (mean 123% of the average of the standard for BSA). Analysis of mitral inflow showed that in gl, LV diastolic function was abnormal in 28(74%) pts vs 28(48%) pts in gII (p=0.0195). E/A ratio was abnormal in 16(42%) pts in the gl vs 25(43%) in the gII. Wave E was abnormal in 23(61%) pts in gI vs 21(37%) pts in the gII (p=0.035) and wave A in 17(45%) children in gI vs 16(28%) in the gII (p=0.124).

Conclusions: (1) Assessment of diastolic function by Doppler echocardiography imaging is useful for risk stratification in children with HCM. (2) Doppler echocardiography imaging parameters should be included into the clinical management of HCM patients.