

## MP2-18

### **Novel Method for the Definition of Left Ventricular Hypertrophy Improves Identification of Impaired Cardiac Mechanics in Children with CKD: a 2D Echocardiography Strain Study**

*Chinali M., Matteucci M.C.(1), Esposito C.(1), Doyon A.(2), Franceschini A.(1), Del Pasqua A.(1), Iacomino M.(1) Schaefer F.(2), Emma F.(1), Rinesi G.(1), Drago F.(1)  
Bambino Gesù Children Hospital, Rome, Italy (1);University of Heidelberg, Heidelberg, Germany (2)*

**Background.** We have recently suggested a simplified indexation approach to define left ventricular hypertrophy in children and adolescents of both genders (J Peds 2016). Objective of the present study was to verify whether our proposed indexation improves identification of abnormal cardiac phenotype in a population with high prevalence of LVH.

**Methods.** Overall 238 children with available echocardiographic data, from the 4C multicenter European study on CKD were included. Presence of LV hypertrophy was defined using traditional partition values ( $LVM > 38g/m^2.7$ ) and by our recently suggested approach [ $LVM > (45g/(m^2.16+0.09))$ ]. Differences in the two methods in the identification of children with impaired systolic function by traditional and 2D Strain indices of cardiac mechanical function were reported.

**Results.** Using the traditional partition value LV hypertrophy (tLVH) could be identified in 147 children representing 62% of the total population. In contrast, our proposed method identified LV hypertrophy (nLVH) in 142 children, representing 59% of the whole population. Despite major accordance among methods (kappa score 0.88), tLVH was identified in 15 patients without nLVH, while nLVH was present in only 10 patients without tLVH. Of note, children with tLVH, but not nLVH were significantly younger as compared to the rest of the population ( $p < 0.05$ ) and did not show any reduction in traditional measures of chamber cardiac function (EF: 67.5 vs 68.4  $p = ns$ ). In contrast patients with nLVH showed mildly lower indices of mechanical function by both midwall fractional shortening (14.8 vs 17.8%;  $p < 0.05$ ) and on both the 2D strain radial (26.5 vs 32.4%) and the circumferential vector (21.2 vs 26.5%).

**Conclusions.** Traditional definition of LV hypertrophy mildly overestimates the prevalence of LVH in children with CKD younger children, in which no abnormalities in cardiac function can be found. Our proposed simplified approach for the definition of LV hypertrophy overcomes this issue, significantly improving risk stratification in CKD children.