

CARDIOMYOPATHIES

PAEDIATRIC SCREENING CRITERION FOR HCM

Researchers from the USA have reported that a novel, paediatric-specific, electrocardiographic criterion is superior to several existing criteria for the diagnosis of hypertrophic cardiomyopathy (HCM) in children. “[As] HCM is an unpredictable, progressive disease, the need to diagnose as early as possible is imperative,” write the authors. “However, no previous study has focused on children.”

The paediatric-specific criterion was a combined amplitude of >23 mm for the R wave on the aVL lead and the S wave on the V2 lead ($R_{aVL} + S_{V2} >23$ mm). This criterion was compared with three other criteria used in screening for HCM in adults: the Sokolow–Lyon criterion ($SV1 + RV5/RV6 >35$ mm), the Cornell criterion ($R_{aVL} + SV3 >28$ mm [men] >20 mm [women]), and the total 12-lead voltage criterion (R wave to the nadir of the Q/S wave >175 mm). The investigators performed a retrospective analysis of data from 108 patients aged 7–21 years with a diagnosis of HCM, and 107 age-matched and sex-matched healthy control individuals.

All four criteria were significantly associated with a diagnosis of HCM in children. The paediatric-specific criterion had a greater sensitivity (71%) than either the Sokolow–Lyon (42%) or the Cornell (37%) criteria, with similar specificity (93%, 94%, and 97%, respectively). Although the sensitivity of the total 12-lead voltage criterion was greater than that of the paediatric-specific criterion (89% vs 71%), the specificity was much lower (43% vs 93%). When the analysis was restricted to the 78% of patients who were phenotype-positive for HCM, the sensitivities were 38%, 46%, 70%, and 73% for the Sokolow–Lyon, Cornell, total 12-lead voltage, and paediatric-specific criteria, respectively. The area under the receiver operating characteristic curve (AUC; a measure of overall performance) was significantly greater for the paediatric-specific criterion than for the Sokolow–Lyon (0.82 vs 0.67; $P=0.0001$) and Cornell (0.82 vs 0.70; $P=0.0019$) criteria. The AUC for the paediatric and 12-lead voltage criteria were similar (0.82 and 0.83, respectively). The authors conclude that, if more such studies in paediatric populations are performed, an effective screening programme for HCM could become a reality.

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