THE POOR PERFORMANCE OF ELECTROCARDIOGRAMS FOR DETECTION OF ATRIAL SEPTAL DEFECTS IN CHILDREN

ACC Moderated Poster Contributions
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Authors: Ofer Schiller, E Anne Greene, Jeffrey Moak, Marcin Gierdalski, Charles Berul, Children’s National Medical center, Washington, DC, USA

Background: Secundum atrial septal defects (sASDs) are among the most common congenital heart defects. Due to the subtle findings on physical examination of children with an ASD, the electrocardiogram (ECG) has been used to aid in the diagnosis. Several ECG abnormalities have been associated with ASDs, among them: right ventricular conduction delay or RSR’ pattern in lead V1 (RSR’-V1). The aim of this study was to assess the diagnostic accuracy of RSR’-V1 patterns in detecting isolated sASDs.

Methods: Children who underwent an ECG during 2010 were divided into two ECG groups: RSR’-V1 and normal. Children who underwent an echocardiogram during 2010 were divided into an ASD group or normal echocardiogram group. Children with other heart defects were excluded. The four groups were matched in a 2-by-2 table where ECG was the “test” and sASD was the “disease”. Sensitivity, specificity, predictive values, and pre/post-test probabilities were calculated.

Results: 4658 ECG studies were included in the analysis; 836 had RSR’-V1 variants and 3822 were normal. 5135 echocardiographic studies were included in the analysis; 329 had an sASD and 4606 were normal. 1363 patients had both studies done during 2010. The ECG sensitivity for diagnosing an ASD was 36.1%, specificity was 80% and the positive predictive value was 14.7% with an overall accuracy of 76.2%.

Conclusion: ECG is a poor screening test for diagnosis of ASD. It should not change the clinical suspicion or the decision analysis of whether to obtain an echocardiogram.