

# Diagnostic validity of auscultatory and electrocardiographic features in children with atrial septal defect

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## ABSTRACT

**Introduction:** The atrial septal defect (ASD) is an acyanotic congenital heart defect with left to right shunting, that can occur in any portion of the atrial septum. Auscultation and electrocardiographic (ECG) findings are characteristic for diagnosis of atrial septal defect. This study was done for detection of sensitivity and specificity of these findings in diagnosis of ASD in children.

**Methods:** This descriptive-analytic study was done on 100 patients with ASD that referred to pediatric heart clinic during 2000-2004 and compared with 205 normal children that were matched for age and sex. Physical examination, ECG and echocardiography of two groups were compared. Data were collected and analyzed with SPSS software and statistical tests.

**Results:** Mean age of patients with ASD was  $7.71 \pm 4.60$  and in control group was  $6.92 \pm 4.75$ . Male to female ratio in case and control groups were 1.56/1 and 1.07/1, respectively. Sensitivity and specificity of fixed and wide splitting of the S2 in patients with ASD were 96% and 100%, respectively. Sensitivity and specificity of ejection systolic murmur in pulmonic area in patient with ASD were 97% and 100%, respectively. Sensitivity and specificity of rsR' pattern in ECG of patients with ASD were 79% and 99.02%, respectively. Sensitivity and specificity of right ventricular hypertrophy (RVH) without rsR' in ECG of ASD patients were 29% and 100%, respectively. Sensitivity and specificity of tall p wave in the patients with ASD were 39% and 100%, respectively. Based on statistical analysis, fixed and wide splitting of the S2 and ejection systolic murmur in pulmonic area are more helpful for diagnosis of patients with ASD than other findings.

**Conclusion:** The findings of this study showed that auscultatory and ECG findings of ASD are as helpful in children as in adults. This is especially true in centers that modern diagnostic instruments (such as TEE and TTE) are not available.

**Key words:** Heart Septal Defects, Atrial – Auscultation - Electrocardiography

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