Curr Pediatr Res 2016; 20 (1&2): 209-209 *ISSN 0971-9032*
www.currentpediatrics.com

Atrial septal defect effects, electrocardiographic signs and shunt volume.

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Accepted September 14, 2016

"Relationship between electrocardiographic signs and shunt volume in atrial septal defects" mentioned that percentage of an isolated negative T-wave and RBBB increased as increase of shunt volume in ASD. On multivariate analysis of the relationship between age, QRS axis, sex, mean pulmonary arterial pressure, RBBB, notched R-waves in the III and aVF lead and an isolated negative T-wave, there was a significant correlation between Qp/Qs ratio and the presence of RBBB (P=0.04) and an isolated negative T-wave (P=0.0002) [1].

I'm afraid that this mechanism is unclear. It is possible that action potential duration in the area of the heart beneath the left anterior chest was prolonged and therefore produced the isolated negative T-wave pattern in V_4 in ASD with volume overload [2].

RBBB in ASD with volume overload has been considered to be caused by right ventricular enlargement. But we do not have to forget that because of approximately 3% of healthy children also showed an IRBBB pattern in lead V_1, this finding has low specificity for diagnosing ASD. With combination of these ECG findings and UCG, we can diagnosis existence of volume overload in ASD more accurately.

References

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