

P-203

Risk factors as predictors for an ASD-closure at very young age.

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Background:

According to current guidelines, an asymptomatic Atrial Septal Defect (ASD) is closed at the age of three to four years. Significant ASD will lead to volume overload, enlargement of the right side of the heart and several symptoms. The aim of this study was to assess risk factors for closure of ASD at two years of age or younger.

Methods:

In this case-control study all children treated with ASD closure, surgically or with percutaneous device closure, between 2000-2014 at two of Sweden paediatric heart centres were included in the study. Cases were children at two years of age or younger at time of closure. Exposure information was retrieved from medical journals and national registries.

Results:

Overall 413 children were included in the study population and 131 (32%) were two years or younger, equally distributed between ASD device closure and surgery. Risk factors associated with an early ASD closure were preterm birth, additional chromosomal abnormalities pulmonary hypertension and additional congenital heart defects, especially for an ASD size:body weight ratio of 0.8 and even after adjustments were made for confounding factors. An ASD size:body weight ratio of 2.0 as well as a ratio of 0.8, was associated with increased risk of an early ASD closure.

Conclusions:

Several independent risk factors were associated with an increased risk of an early ASD closure. An ASD size:less bodyweight ratio=2 or a ratio=0.8 were both associated with increased risk of an early ASD closure, indicating that the ASD size:body weight ratio is a poor predictor for indications of ASD closure.