

### **Comparison Of Antenatally And Postnatally Diagnosed Atrioventricular Septal Defect (AVSD) And Its Contemporary Outcomes In South Wales**

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**Objective:** To compare clinical associations and outcomes of fetuses and infants diagnosed with atrioventricular septal defect (AVSD) in South Wales.

**Methods:** Retrospective study of all antenatally and postnatally diagnosed AVSD in South Wales, between 2001 and 2018.

**Results:** 287 cases of AVSD were identified: overall 69.33% (n=199) were diagnosed antenatally (AN) and 30.66% (n=88) postnatally (PN). The antenatal pick-up rate increased over the years from 25% to over 60%. Karyotyping was available in 183 cases: 123 had trisomy-21 and 18 trisomy-18. Pregnancy was interrupted (TOP) in 90 cases (45.23%) and intrauterine death and stillbirth were noted in 20 cases.

Associated cardiac anomalies were found in 159/287 cases; 132 also had non-cardiac anomalies. Out of live births, 43/88 PN cases versus 65/89 AN cases had additional cardiac anomalies. Isomerism, unbalanced AVSD, pulmonary atresia and coarctation were significantly more common in the AN group, which translated into poorer outcomes with higher mortality rates (AN 35.96% versus PN 12.50%).

89 antenatally diagnosed patients were delivered alive: 65 had additional cardiac and 44 non-cardiac anomalies, compared to the TOP group (n=90), where 38 had additional cardiac and 40 had non-cardiac anomalies. Karyotyping was positive in 42 delivered patients versus 50 interrupted pregnancies. The most common cardiac anomaly was unbalanced AVSD for both groups (22.47%, n=20 versus 20.00%, n=18), followed by pulmonary atresia or stenosis (21.35%, n=19 versus 12.22%, n=11). Main non-cardiac anomalies were gastrointestinal (24.72%, n=22) for delivered patients and musculoskeletal (26.67%, n=24) for the TOP group.

101 underwent AVSD repair and 27 had complex surgical procedures for Fontan route. 29 required mitral valve repair (with four requiring mitral valve repair redo and five mitral valve replacement). 6 required pacemaker implantation. Postop mortality rate was 19.28% (n=16) for the associated cardiac anomalies group and 5.17% (n=3) for the isolated group. Risk factors for increased mortality were antenatally diagnosis and additional serious cardiac anomalies.

**Conclusions:** Although the number of antenatally diagnosed AVSDs increased over the years, this trend had no favourable effect on the surgical outcomes. Karyotype, associated cardiac or non-cardiac anomalies had no influence on patients' decision for pregnancy interruption. The mortality rate for AVSD associated with complex cardiac lesions remains high.