DETECTION OF CONGENITAL HEART DEFECTS ON FETAL ANOMALY SCREENING : A SINGLE CENTRE EXPERIENCE OVER THREE YEARS

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Background

- Congenital heart defects (CHDs) are the commonest congenital anomaly with an incidence of approximately 1% in the general population.¹
- Despite improved diagnosis and increased survival, it is still a major cause of infant mortality in those with congenital defects.²
- In the UK, there remains a significant variation among centres in detection of CHDs on fetal anomaly screening (FAS).¹
- Early diagnosis of CHDs and their subsequent management is crucial to optimise postnatal outcomes.

Aims

- To evaluate the methods used for antenatal detection of CHDs including fetal anomaly screening and fetal echocardiography.
- To assess subsequent management and postnatal outcomes to determine the effects of an antenatal diagnosis.

Methods

- Electronic patient records were reviewed retrospectively in cases with a suspected cardiac abnormality on fetal anomaly screening performed at our maternity hospital between Jan 2015-Dec 2017.

Results

- 14,878 fetal anomaly scans were performed in this time period, with 119 cases of suspected CHD.
- 99 cases were referred for specialist fetal echocardiography (ECHO), of which 51% (50) were abnormal. Fetal ECHO diagnoses are shown in Figure 1.
- After diagnosis, most pregnancies continued (84%), with 69% of deliveries occurring at the Rosie Hospital.
- There were low levels of both prematurity and low birth weight (<2500 grams), representing 31% of all births.
- 9 infants required prostaglandin E1/E2 postnatally, with the indications for this summarised in table 2.
- Many infants needed surgical interventions shown in Figure 3, including 5 infants with critical CHD who required surgery soon after birth.
- In our cohort, the 1 year survival rate was high at 92%.

Table 2 : Indications for administration of prostaglandin E1/E2

Type of Congenital Heart Defect	No of cases (%)
Hypoplastic aortic arch	3 (33%)
Hypoplastic left heart syndrome and coarctation of aorta	1 (11%)
Coarctation of aorta	1(11%)
Double outlet right ventricle	1 (11%)
Pulmonary atresia	1 (11%)
Tricuspid atresia and pulmonary stenosis	1 (11%)
Absent pulmonary valve syndrome	1 (11%)

Figure 3 : Postnatal Interventions

Conclusions

- Half of the cases with a suspected CHD on FAS and referred for specialist fetal echocardiography had a congenital heart defect.
- Postnatal outcomes after early surgical intervention were good with a high survival rate for our cohort.

References

1. Singh, Y., McGeoch, L., 2016. Fetal Anomaly Screening for Detection of Congenital Heart Defects. J. Neonatal Biol. 5. <https://doi.org/10.4172/2167-0897.100e115>

2. Singh, Y., Chee, Y.-H., Gahlaut, R., 2015. Evaluation of suspected congenital heart disease. Paediatr. Child Health 25, 7–12. <https://doi.org/10.1016/j.paed.2014.07.005>

Figure 1 : Fetal ECHO diagnosis