**Indication Specific Diagnostic Yield of Fetal Echocardiography**

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**Introduction.** To document the indication specific diagnostic yield of fetal echocardiography, when performed by established referral indications.

**Methods**

*Retrospective study* based on referral indications and documented findings of fetal echocardiograms performed over 6 years (1997-2013) in an academic referral center for fetal cardiology.

*Referral indications* have been classified as either supported by recent literature (Ind+) or not (Ind-). (Ref)

*Indication specific diagnostic yields* and Odds Ratios (O.R) for 1) any abnormality 2) fetal congenital heart disease (f.CHD) and 3) critical f.CHD when fetal echocardiography was applied in Ind+ and Ind- pregnancies have been estimated.

**Results**

**A.** 1782 out of 1847 fetuses (1804 pregnancies) were included, having complete referral data.

915 (51.3%) corresponded to Ind+ cases, the remaining to Ind- cases.

**Ind+ cases** had fetal (50.4%), familial (36.9%) or maternal (31%) origin of referral indication

**Ind- cases** had either no referral indication (family or physician’s wish for detailed imaging) (52%) or not established referral indications. Fig. 1.

**B. Diagnostic yield in the whole group for**

- any abnormality 35.7%
- f.CHD 27.6%
- critical f.CHD 1.9%

**ICHD diagnoses** (in descending order)

- ventricular septal defects (38.6%)
- aortic coarctation, atrial septal defects (5-10% each)
- valvular stenosis, arch abnormalities, complex forms of CHD (<5% each)

**C. Ind+ referrals were associated with increased risk.**

(compared to Ind- referrals) for:

1) any abnormality (46.1% vs 24.5%, O.R: 2.6, 2.1-3.2)
2) f.CHD (35.8% vs 18.9%, O.R: 2.3, 1.9-2.9)
3) critical f.CHD (3.2% vs 0.6%, O.R:5.6, 2.6-14.5)

(Chi-square p<0.001)

**D. There was an indication-specific diagnostic yield**

Diagnostic yield (%) for ICHD / critical CHD in Ind+ referrals:

**Highest >50% for**

- polyhydramnion (71/14)
- abnormal heart in anomaly scan (56/8)
- chromosomal abnormalities (62/1)

**Intermediate 25-50% for**

- fetal malformations (39/3)
- increased NT (36/1.8)
- maternal CHD (45/4.5)
- Low < 25% for

- IVF (21/1.3)
- maternal diabetes (18/1.9)
- Teratogen drug exposure (18/0)
- monochorionic twins (18/0)

**Fig 3. Indication-specific diagnostic yield**

**Fig 2. Increased relative risk for f.CHD (left) and critical CHD (right) in cases having an established indication for fetal echocardiography.**

**Conclusions**

**Fetal echocardiography** when performed under established indications is associated with significantly increased diagnostic yield for fetal CHD, which is referral indication specific. However, critical fetal CHD cases might still escape antenatal diagnosis in the absence of indication for fetal echocardiogram.

**References**

2. Germanakis I. (1), Bagaki A. (1), Matalliotakis I. (2), Makrigiannakis A.(2) Dpt of Obstetrics and Gynecology (2) University Hospital Heraklion, Faculty of Medicine, University of Crete, Greece

Authors declare that there is no conflict of interest