Fetal Cardiac Screening

Ultrasound for cardiac outflow tracts

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4 Chamber View

- Situs
- Equal sized ventricles HLHS / PA
- Crux of heart – AVSD / Big VSD
- Offset of tricuspid valve – Ebstein’s anomaly
- Morphological appearance of right and left -
- Pulmonary view into LA – TAPVD
- Appearance of physiological ASD -
Further views

• Cross-over of LVOT & RVOT – TGA
• 3 vessel view – Does Aorta come from LV
  – VSD, Fallot’s, DORV
• Does PA come from RV
  – Fallot’s DORV

• Current teaching is for 5 transverse views of the fetal heart
• [http://www.echocharity.org.uk/sonog5vprotocol.html](http://www.echocharity.org.uk/sonog5vprotocol.html)
• **3.6.1** The minimum standard for a "20 week" anomaly scan.
  – Head shape + internal structures
  – Spine: longitudinal and transverse
  – Abdominal shape and content at level of stomach
  – Abdominal shape and content at level of kidneys and umbilicus
  – Renal pelvis
  – Longitudinal axis - abdominal-thoracic appearance
  – Thorax at level of 4 chamber cardiac view
  – Arms - three bones and hand (not counting fingers)
  – Legs - three bones and foot (not counting toes)

• **3.6.2** The optimal standard for the "20 week" anomaly scan If resources allow, the following could be added to the features in 3.6.1:
  – Cardiac outflow tracts
  – Face and lips
1.7.1.5 *New* Fetal echocardiography involving the four-chamber view of the fetal heart and outflow tracts is recommended as part of the routine anomaly scan.

*Evidence summary*

There was low-level evidence that showed babies with antenatally diagnosed TGA had reduced mortality compared with those diagnosed after birth.
West Midlands Practice

• NSC Ultrasound Survey 2002
  – Cardiac outflow tracts, measured in:
  – 57% of units – England
  – 25% of units – West Midlands (4/20)
    • Revised info 2008 15% units (3/20)

• West Midlands
  – Routine anomaly scan offered in all units
  – RCOG baseline anatomy survey – 14/19 units ≤ 20 mins
  – Other issues
    • Training in echocardiography
Spare Slides
NICE Guidelines 2008

• The reported sensitivity of fetal echocardiography is widely ranged by centre and condition, although reported specificity was generally high.

• With baseline results, the four chamber view is the cheapest strategy for screening for cardiac malformations owing to the higher cost of the four chamber plus outflow tracts view.

• However, the higher sensitivity of the four chamber plus outflow tracts view results in 0.334 more live births per 1,000 pregnancies with antenatally detected cardiac malformations. A proportion of these (36% at baseline) would be TGA and given the baseline assumption about lower mortality for TGA with an antenatal diagnosis, this leads to a concomitant 1.8 neonatal deaths averted per 100,000 pregnancies.