

P05.28**Evaluation of the fetal heart anatomy at 12 to 16 + 6 weeks of gestation**

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Objective: To establish the normal limits of FHR and reliability of fetal heart anatomy evaluation during obstetric scan at 12 to 16 + 6 weeks of gestation.

Material and methods: Analysis of transabdominal ultrasound scans performed in 343 pregnant women at 12 to 16 + 6 weeks of gestation. 2D, M-mode and Doppler techniques were used. Gestational week was established on the basis of CRL, BPD, HC, AC and FL measurements. Demographic factors, obstetrical history and follow up of pregnancies were collected. All data were statistically reviewed (Chi test, Student T test, Mc Person correlation).

Results: Maternal age varied between 18 and 44 years (mean 32.7 ± 6) and paternal age: 22–62 years (mean 35.4 ± 7). There were 56% primigravidas, 18% women had a history of two or more deliveries and 14% had one or more abortions. FHR varied between 127 and 185 bpm (mean 151 ± 9). The statistically significant difference was found between FHR at 12 weeks (mean 160 ± 8) and following gestational weeks (149–155 bpm). The r – correlation ratio between FHR and gestational week was -0.41 (ns), maternal age $-r = 0.40$ (ns), paternal age $r = 0.28$ (ns) and nuchal translucency $r = -0.11$ (ns). The ultrasound visualization of four chamber view was possible from 12 weeks (72%) to 14 weeks – full evaluation of fetal heart structures could be done in about half of patients then (54%). The ratio between fetal heart area and fetal chest area varied from 0.22 to 0.29. There was no significant correlation between that ratio and gestational week.

Conclusions: Fetal heart rate at 12 to 16 weeks was irrespective of the duration of gestation. Parents' age and nuchal translucency did not have influence on the fetal heart rate. It is possible to evaluate fetal heart anatomy as early as at 12 to 16 weeks. The fetal heart size is then smaller than later in pregnancy.

P05.29**Evaluation of PR interval in fetuses of Anti Ro positive pregnancies**

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Objectives: Immune mediated complete heart block (CHB) occurs in 3% of fetuses of mothers with Anti Ro or La antibodies (Ro/La). The disease is progressive and early detection of PR interval prolongation could rationalise treatment with steroids to ameliorate damage. We report mechanical and electrical PR intervals of Ro/La fetuses.

Methods: Retrospective audit January 1997 to December 2004 of all Ro/La mothers. Mechanical PR interval was measured from the onset of the mitral A wave Doppler to the onset of aortic ejection at the level of the left ventricular inflow and outflow. Twenty-three fetuses had non-invasive fetal ECG (fECG) and mechanical and electrical fetal PR intervals were compared with normal reference ranges.

Results: Ninety-one mechanical PR intervals were measured in 42 Ro/La women. Twenty-three also had 35 fECG. Six had mechanical PR interval > 95 th centile for gestation, three of whom developed CHB. The sensitivity of mechanical PR interval to detect heart block was 75% and the specificity was 92%, with a false positive rate of 8%. One fetus showed normal mechanical PR interval at 22 weeks

but initial fECG PR interval was > 95 th centile and progressed to CHB in spite of immediate steroid therapy.

Discussion: Measurement of mechanical PR interval is moderately valuable in assessment of this high-risk population but fetal ECG has unmasked considerable variability in PR interval in those studied serially and is likely to be the more useful tool to permit a therapeutic trial of steroid efficacy in preventing progression to CHB.

P06: MULTIPLE PREGNANCY**P06.01****Determination of chorionicity in twin gestation by 3D multiplanar ultrasound: measuring the thickness of the intraamniotic membrane**

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Objective: Our aim was to determine whether chorionicity in twin gestations during the second and the third trimester can be diagnosed by measuring the thickness of the intraamniotic membrane with 3D multiplanar ultrasound. Indeed using 2D ultrasound may give uncertain results, given the possibility to measure it in oblique view when 3D insure measuring the whole thickness of the membranes. Study design: We conducted a prospective study of 50 twin pregnancies between 20 and 32 week's gestation. The dividing membranes between the fetuses were visualized by 2D transabdominal ultrasonography, and the thickness of the membranes was measured by the 3D triplan technique with a 4.0–8.0 MHz abdominal transducer (Voluson 730, Kretz). Intraobserver variability was assessed comparing the measurement obtained with the sagittal and axial view by the same examiner. We constructed a Receiver Operator Characteristic (ROC) curve to determine the optimal cutoff point of the thickness of the membranes to predict chorionicity. Kappa index, intra-class correlation coefficients and 95% limits of agreement were calculated to evaluate the inter and intra-operator variability.

Results: The best cut-off to discriminate monochorionic or dichorionic twinning was a thickness of 2 mm. Using this cutoff point, the accuracy was 100%. Kappa indexes for intra-operator variability and inter-operator variability were all 100%. The intra-class correlation coefficients were all at 0.95 or more. The 95% limits of agreement were all within ± 0.25 mm.

Conclusion: Prenatal assessment of dividing membranes using 3D multiplanar US may be helpful in determining chorionicity during the second and the third trimester.

P06.02**Number of yolk sacs does not predict amnionicity in early first trimester monochorionic multiple gestations**

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Objective: To determine the relationship between amnionicity and number of yolk sacs in early first trimester monochorionic multiple pregnancies.

Methods: We identified 22 cases of monochorionic multiple pregnancies scanned in the first trimester.

Results: In one case of monoamniotic twins, a single yolk sac was observed. In 17 cases of monochorionic diamniotic twins, 2 yolk sacs were seen. In 3 cases of monochorionic, diamniotic twins a single yolk sac was seen. In one case of monochorionic triamniotic triplets, 2 yolk sacs were demonstrated.

Conclusions: In monochorionic pregnancies, 2 yolk sacs predict diamnionicity. Demonstration of a single yolk sac at any stage, does not necessarily predict monoamnioticity, and this diagnosis can be determined only by a careful search for a dividing amniotic membrane.