



Ductus venosus pulsatility index assessment at 19-20 weeks in a Danish population

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Objective

The aim of this study was to construct a reference range of the ductus venosus pulsatility index at the second trimester anomaly scan in a Danish cohort.

Methods

The Copenhagen Baby Heart study is a multicenter cohort study, where all neonates are offered an echocardiography within the first 2 weeks' of life aiming to recruit 25, 000 pregnancies at the second trimester anomaly scan. In this sub-study, we evaluated the ductus venosus Doppler flow curve obtained at the second trimester anomaly scan performed at 19+0 to 21+4 weeks of gestation, and only included cases with clearly defined waveforms. We excluded cases with maternal disease (hypertensive disorder, cardiac disease, hyperthyroidism, autoimmune disorder, thalassemia, diabetes), pregnancy complications (preeclampsia, cholestasis of pregnancy, abnormal prenatal scan, single umbilical artery (SUA), rhesus immunization, preterm delivery (<37 weeks of gestation), small for gestational age) and disease in the infant (icterus, congenital malformation, cardiac malformation). The predicted mean, 5th and 95th percentile lines for PI for the ductus venosus flow were established according to gestational age.

Results

A total of 365 cases were assessed from where 87 cases were excluded according to the exclusion criteria (23. 8%), and three cases excluded as outliers using Rosner's Outlier Test ($p < 0. 05$). Maternal characteristics were similar except from a twofold incidence of assisted reproductive technology in the excluded group. The ductus venosus PI was normally distributed. The results were analyzed using linear regression. There was an inverse relationship between ductus venosus PI and gestational age at sampling (days) ($-0. 0022 \times GA + 1. 0508$).

Conclusion

In a Danish, healthy cohort, we established a reference range for the ductus venosus PI at the time of the anomaly scan. The results are similar to previously published reference intervals in non-Scandinavian populations. The reference interval can be used in a Scandinavian clinical setting, and will be used as a reference when analyzing results from the Copenhagen Baby Heart study.

