The impact of nuchal cord on ductus venosus assessment at 11 to 13+6 gestational weeks

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Objective
To study the impact of a nuchal cord on the measurement of the pulsatility index of the ductus venosus (DV-PIV) at 11 to 13+6 gestational weeks.

Methods
This was a prospective study of all singleton pregnancies that attended a single Fetal Medicine Unit for first trimester screening, between 2013-2015. Epidemiological, obstetrical and ultrasound findings were reviewed. The presence or absence of a nuchal cord was determined by using color Doppler in all cases, before freezing the image for the measurement of the nuchal translucency. The primary outcomes of the present study were to estimate the prevalence of nuchal cord at the 1st trimester scan and to correlate the presence of a nuchal cord with the DV-PIV. The secondary outcome of the present study was to compare the incidence of nuchal cord at each one of 11-12-13 gestational weeks as well as to study the association between the presence of a nuchal cord and different cut-off values of DV-PIV.

Results
Overall, 1974 pregnancies were included in the present study. The mean maternal age was 30.6 (±4.8) years and the mean CRL was 62.0 (±7.2) mm. The overall prevalence of a nuchal cord using color Doppler was 17.1% (n=337). No significant correlation was found between NC presence and DV-PIV (0.99 ± 0.15 for both groups, p=0.344). The prevalence of a nuchal cord was significantly higher at 13-13+6 weeks (24.7%, n=119) compared to that at 12-12+6 and 11-11+6 weeks (16.5%, n=192 and 7.9%, n=26 respectively) (p<0.001). No significant difference was detected in the prevalence of NC for the various DV-PIV cut-off values tested.

Conclusion
This study has shown that there is no difference in the mean DV-PIV between fetuses with a NC and fetuses without a NC, contrary to a previous report. The prevalence of a NC increases with gestational week and was found to be 17.1% in our population, higher than previously reported.