**EP06.14 - The ratio of prenasal thickness and nasal bone length as a screening parameter for fetal abnormalities in the second and third trimester**

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**Introduction**

Fetuses with trisomy 21 (T21) show subtle facial abnormalities (Figure 1). This prospective study aims at providing a reference range and at testing the value of the ratio of the prenasal thickness (PT) to the nasal bone length (NBL) between normal fetuses (n=1158), fetuses with common trisomy 21/13/18 (n=42) and additionally between fetuses with other fetal abnormalities such as multiple malformations (n=27), other chromosomal disorders (n=14) and musculoskeletal anomalies (n=14), in the 2nd and 3rd trimester of pregnancy.

**Results**

The ratio was significantly higher in T21 fetuses compared to controls (0.93 versus 0.6, p < 0.001) and stable throughout gestation. The detection rate was higher when the 95th percentile was used as a cut-off compared to the cut-off ≥ 0.8 (Diagram & Table 1). The ratio was significantly higher in fetuses with T18/13 compared to controls (0.91 versus 0.6, p < 0.01) and above the 95th percentile in 83.3% of the cases. For fetuses with multiple malformations (n=13), other chromosome disorders (n=4) and musculoskeletal anomalies (n=3) the cut-off ≥ 0.8 or ≥ 95th percentile had a detection rate of 34.5% (19/55) and 36.4% (20/55) respectively. The ROC analysis of the ratio for all categories, confirmed the test quality of the ratio for T21, T18 and T13 (Diagram 2).

**Conclusion**

The ratio is stable in the 2nd and 3rd trimester of pregnancy in both, normal and T21 fetuses. It has a good discriminative power for the detection of T21, T18 and T13 compared to normal fetuses. The PT:NBL ratio might be an additional detection parameter for certain other fetal abnormalities, chromosomal-, syndromal- and musculoskeletal disorders.

**Diagram & Table 1: PT:NBL ratio dependent on the gestational age as well as the sensitivity and specificity of the ratio dependent on the cut-off. The black dots show the T21 and the black stars the T18,T13 fetuses.**

**Diagram 2: The ROC analysis of the PT:NBL ratio for all categories, revealed the highest AUC of 0.92 (95% CI: 0.86-0.98) for T21 and 0.75 (95% CI: 0.45-1) for T18 and T13.**