**Objective**
It is well known that performing an ultrasound beforehand is useful for detecting any disorders. We know that thin umbilical cords are concerned with fetal dysfunction because of their weakness during labor and that a larger fetal head circumference makes vaginal delivery more difficult. The aim of this study is to clarify whether we can predict NRFS (non-reassuring fetal status) during labor by measuring the thickness of the umbilical cord and the biparietal diameter (BPD) ratio.

**Method**

- **Method 1**: We measured the umbilical cord area and the Wharton's jelly area by fetal ultrasound at 34–40 weeks. (Figure 1) We then analyzed whether NRFS cases relate to the thickness of the umbilical cord, the head circumference ratio, and perinatal outcome.

- **Method 2**: We compared the umbilical cord area and head circumference ratio with ultrasound measurements before birth in 50 cases.

**Result**
A total of 913 cases were subject to this study. Among them, 98 cases (10.7%) resulted in NRFS and, in these cases, there were significant differences in parity (OR 0.649, CI 95% 0.482–0.872, p<0.05), the placenta volume (OR 0.994, CI 95% 0.992–0.996, p<0.05), the umbilical cord excess (OR 15.233, CI 95% 1.478–156.979, p<0.05), and the umbilical cord area and head circumference ratio (OR 1.001, CI 95% 1.002–1.021, p<0.05). (Figure 2)

We found a correlation between the thickness of the umbilical cord after delivery, the head circumference ratio after birth, and the umbilical cord area and BPD ratio before birth (r=0.593, p<0.001). (Figure 3)

**Conclusion**
The thickness of the umbilical cord correlated with NRFS. Therefore, the measurement of the thickness of the cord and the BPD ratio before birth might predict NRFS during delivery.