Induction of Labour in Nulliparous Women Beyond Term in a Low-Risk Population

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Introduction
Induction of labour is a common procedure in obstetrics. One common indication is pregnancy beyond term. Especially in nulliparous women, timing of induction beyond term is controversial due to potential higher caesarean section rates after induction. Therefore, the aim of this study was to evaluate the influence of gestational age on induction of labour in nulliparous women.

Material and methods
This historical cohort study analyzed inductions of labour in low-risk nulliparous women at term between 2011 and 2016 in a single tertiary perinatal centre. Therefore, the collective was divided into 3 groups (group 1: 40 + 0 to 40 + 6 weeks of gestation, group 2: 41 + 0 to 41 + 3 weeks of gestation, group 3: > 41 + 3 weeks of gestation). Exclusion criteria were, amongst others, a previous caesarean section, fetal chromosomal or structural anomalies, fetal growth restriction, maternal hypertension and gestational diabetes. Gestational age was calculated from the last menstrual period and confirmed by or recalculated with biometric measurements obtained from fetal biometry in early pregnancy according to current recommendations. The Bishop score was assessed before induction. Primary outcome measure was the caesarean section rate. Secondary outcome measures included the induction-to-delivery interval, the rate of vaginal deliveries within 24 and 48 hours, failed labour induction (defined as no vaginal delivery within 72 hours) and neonatal outcome parameters (such as arterial umbilical cord pH and base excess as well as Apgar score at 5 minutes).

Results
Overall, 596 nulliparous women were included (group 1: 100 women; group 2: 390 women; group 3: 106 women). The caesarean section rate was not different among the three groups (p = 0.4036). The caesarean section rate was 37% in group 1, 30% in group 2 and 31% in group 3, respectively (p = 0.4036). The rate of vaginal deliveries as well as the rate of operative vaginal deliveries did not differ in the groups (p = 0.7124 and p = 0.7342). The other secondary outcome parameters did not differ, either. Univariate and multivariate logistic regression analysis could demonstrate that gestational age beyond term has no significant influence on the caesarean section rate. The univariate analysis showed that maternal age, maternal body mass index (BMI), fetal birth weight and cervical maturity (assessed via the Bishop score) had significant influence on the caesarean section rate. However, in the multivariate analysis, only maternal age (p = 0.0005), maternal BMI (p < 0.0001) and fetal birth weight (p = 0.0151) were significant.

Conclusion
Timing of labour induction after 40 + 0 weeks of gestation in a low-risk population of nulliparous women did not influence the caesarean section rate. Therefore, induction of labour beyond term in low-risk nulliparous women is a possible option considering the low risk for intrauterine fetal death.