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INTERVENTIONS DURING PREGNANCY AND LABOR AND OBSTETRIC OUTCOME

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ABSTRACT

Objectives: The overall objective with the present thesis was to assess pregnancy and delivery associated risk factors for adverse pregnancy outcomes. Specific aims were : 1) to analyze the association between fetal size at the time of dating ultrasound and the risk of preterm delivery, small for gestational age birth (SGA), and macrosomia and to evaluate if the timing of ultrasound, i.e. before 14 weeks of gestation or after 16 weeks, affected this association, 2) to assess the risk of emergency cesarean section among women who were induced to labor in gestational week ≥ 41 and to evaluate if parity and mode of induction affected this association, and 3) to analyze if starting time for labor induction affected the risk of night-time delivery, and evaluate to what extent the risk was influenced by Bishop score at start of induction, mode of induction, and parity.

Study 1 and 2 were retrospective cohort studies based on an obstetrical database containing data on all obstetrical care at Danderyd Hospital from 1998-2004. The data was linked to the Swedish Medical Birth Registry. The analysis included 27 952 women. Of these, 5053 had gestational duration assessed through ultrasound before 14 weeks (early) and 22 889 after 16 weeks (late). Risks of preterm delivery, SGA and macrosomia were calculated. When the expected date of delivery was postponed after ultrasound dating ≥ 7 days, regardless of time of dating ultrasound, there was an increased risk of SGA. For preterm birth there was an increased risk for fetuses dated late. When the fetus was ≥ 7 days larger than expected at late ultrasound dating, compared to the expected size according to last menstrual period, there was an increased risk of macrosomia. Fetal size in early pregnancy is not only a function of gestational duration, but also of fetal growth. Accordingly, our studies suggest that surveillance of pregnancies with postponed estimated date of delivery may provide means for increased detection of fetal growth restriction. However, only a limited proportion of all infants born macrosomic can be detected at the time of dating ultrasound.

Study 3 and 4 were retrospective cohort studies including 23 030 women with singleton pregnancies who were delivered in gestational week ≥ 37 at Danderyd Hospital, Stockholm, Sweden, during the period 2002 - 2006. The data was linked to the Swedish Medical Birth Registry. 881 of these pregnancies were induced to labor at ≥ 41 gestational weeks, and 1940 at gestational week ≥ 37 . All of the included women with induction of labor had a Bishop score of < 7 . Prostaglandin E2 or transcervical catheter was used for cervical ripening. Risks of emergency cesarean section and night-time delivery were calculated. Among nulliparous women who were induced at gestational week ≥ 41 there was threefold increase in risk of emergency caesarean section and an almost twofold increase in risk among multiparous compared to women with spontaneous onset of delivery. When labor is induced the high risk for emergency cesarean must be kept in mind. For nulliparae with Bishop score of 0-3 induced by transcervical catheter there was a reduction in risk for night-time delivery when inductions started in the afternoon and evening compared to inductions started in the morning. For multiparae, however, the risk of night-time delivery was highest after induction started in the afternoon and evening, respectively independent of bishop score or method of cervical ripening. Thus, the starting time of labor induction affects the risk of giving birth at night.