What is the position of mechanical pre-induction cervical ripening in modern obstetrics?

Authors: Lukáš Hruban, Petr Janků, Jana Kadlecová, Lenka Mekiňová
Department of Gynaecology and Obstetrics, Masaryk University, Brno, the Czech Republic

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Objective: To evaluate the effectiveness and safety of mechanical pre-induction cervical ripening before labour induction using osmotic cervical dilators Dilapan-S.

Methods: A retrospective study of 68 patients who gave birth at the Gynaecology and Obstetrics University Hospital Brno in 2010-2011 in whom the osmotic cervical dilators Dilapan-S were used for pre-induction cervical ripening before labour induction. Only patients who completed the 36th week of gestation and who had a singleton pregnancy with the fetus's head in the longitudinal position were included. Efficacy of pre-induction and mode of delivery weres assessed. The incidence of contraction activity during pre-induction, uterine hypertonus, signs of intrauterine fetal distress and infectious complications in the mother and newborn were evaluated.

Results: The most common indications for pre-induction cervical ripening were post-term pregnancy (38.2%), diabetes mellitus (19.1%) and maternal hypertensive disorders (10.3%). Previous Caesarean section was present in the medical history of 16 patients (23.5%). The mean cervix score before pre-induction was 2.9 (minimum 2, maximum 4) and 6.1 after pre-induction. A final cervix score of 5 or more was achieved by 54 patients (79%). In three cases, three lots of Dilapan-S were applied and all achieved a cervix score >5. In all other cases, two lots of Dilapan-S were applied. The mean duration of pre-induction was 14 hours 21 minutes. Contraction activity during pre-induction was observed in 18 patients (26.5%), rated as mild by 16 patients. Cardiotocography (CTG) during pre-induction was performed in 67 patients (98.5%). Uterine hyperactivity was not recorded. Thirty-seven patients (54.4%) delivered vaginally, 31 patients (45.6%) delivered by Caesarean section. When comparing the subgroup of patients with a Caesarean section in their medical history (n = 16) and the subgroup of patients without previous Caesarean section (n = 52), there was no significant difference in the ratio of completed vaginal birth (50.0% versus 53.8%). A pH value of 7.10 or lower was found in five patients (7.3%). In the subgroup of patients with a history of Caesarean section, a pH value of 7.10 or less did not occur. No 5 minutes Apgar scores less than 5 were observed. Two patients had postpartum febrile illness treated with antibiotics therapy, which in one case was evaluated as pyelonephritis and in the second case as in open abdominal wound infection after Caesarean section. Four infants (5.8%) were treated for acute conjunctivitis which corresponds to the average incidence in the population. No other complications in the mother or infant were recorded.

Conclusion: The osmotic cervical dilators Dilapan-S are highly effective and safe in pre-induction cervical ripening before labour induction in patients with an unfavourable cervix score. The advantage is the low incidence of adverse contractile activity during pre-induction. Dilapan-S can be effectively used even in patients with a history of previous Caesarean section. Infectious complications in mothers and newborns in our sample were not recorded.