

# Bishop Score and Risk of Cesarean Delivery After Induction of Labor in Nulliparous Women

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## Abstract

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**Objective:** To quantify the risk and risk factors for cesarean delivery associated with medical and elective induction of labor in nulliparous women.

**Methods:** A prospective cohort study was performed in nulliparous women at term with vertex singleton gestations who had labor induced at 2 obstetrical centers. Medical and elective indications and Bishop scores were recorded before labor induction. Obstetric and neonatal data were analyzed and compared with the results in women with a spontaneous onset of labor. Data were analyzed using univariate and multivariable regression modeling.

**Results:** A total of 1,389 women were included in the study. The cesarean delivery rate was 12.0% in women with a spontaneous onset of labor (n = 765), 23.4% in women undergoing labor induction for medical reasons (n = 435) (unadjusted odds ratio [OR] 2.24; 95% confidence interval [CI] 1.64-3.06), and 23.8% in women whose labor was electively induced (n = 189) (unadjusted OR 2.29; 95% CI 1.53-3.41). However, after adjusting for the Bishop score at admission, no significant differences in cesarean delivery rates were found among the 3 groups. A Bishop score of 5 or less was a predominant risk factor for a cesarean delivery in all 3 groups (adjusted OR 2.32; 95% CI 1.66-3.25). Other variables with significantly increased risk for cesarean delivery included maternal age of 30 years or older, body mass index of 31 or higher, use of epidural analgesia during the first stage of labor, and birth weight of 3,500 g or higher. In both induction groups, more newborns required neonatal care, more mothers needed a blood transfusion, and the maternal hospital stay was longer.

**Conclusion:** Compared with spontaneous onset of labor, medical and elective induction of labor in nulliparous women at term with a single fetus in cephalic presentation is associated with an increased risk of cesarean delivery, predominantly related to an unfavorable Bishop score at admission.

**Level of evidence:** II-2.

## Comment in

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[Induction of labor in the nulliparous gravida with an unfavorable cervix.](#)

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