

FPIN's Help Desk Answers

Maternal Obesity and Labor Induction

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Clinical Question

Is maternal obesity associated with failure of induction of labor?

Evidence-Based Answer

Pregnant women who are obese have nearly double the rate of cesarean delivery, and obesity increases the median duration of active labor by up to four hours when labor is induced. The difference in cesarean delivery rate is larger in obese primigravida patients presenting with cervical dilation of less than 1 cm. (Strength of Recommendation: B, based on a secondary analysis of a randomized controlled trial and cohort studies.)

Evidence Summary

A 2009 secondary analysis of data from a previous double-blind randomized controlled trial compared two types of vaginal prostaglandins.¹ The study included 1,273 women requiring cervical ripening (Bishop score less than 5). They were stratified by body mass index (BMI) into lean, obese, and extremely obese (BMI less than 30 kg per m², 30 to 39.9 kg per m², and 40 kg per m² or more, respectively). Patients were older than 17 years with singleton pregnancies of at least 36 weeks' gestation, less than four previous deliveries, and no previous cesarean deliveries. Intra-vaginal dinoprostone (Cervidil) or misoprostol (Cytotec) was used for cervical ripening. Rates of cesarean deliveries for any indication were 21% in the lean group, 30% in the obese group (odds

ratio [OR] = 1.6; 95% confidence interval [CI], 1.2 to 2.1), and 37% in the extremely obese group (OR = 2.1; 95% CI, 1.5 to 3.5). Median duration of active labor was significantly longer in both obese groups (16 hours in obese and 19 hours in very obese, compared with 15 hours in the lean group ($P < .001$ for both comparisons). This was confirmed after adjusting for race, parity, and type of prostaglandin used.

A 2015 retrospective cohort study of 7,543 women with singleton term pregnancies undergoing labor induction examined the association between BMI and cesarean delivery rate.² Indications for induction were classified as maternal, fetoplacental, postdates, rupture of membranes, or other. The method of induction varied. Patients were stratified into normal weight, overweight, and obese (BMI less than 25 kg per m², 25 to 29.9 kg per m², and 30 kg per m² or more, respectively). Compared with patients with normal weight, a significantly higher number of overweight and obese women had cesarean delivery (25%, 31%, and 37%, respectively; $P < .001$). Failure to progress was the major indication for cesarean delivery in each of the groups. The higher rate of cesarean delivery in women with elevated BMI was more pronounced when parity and cervical dilation on admission were considered. The rate of cesarean delivery in obese primigravida patients was 54% overall and 45% in those who presented with cervical dilation of 1 cm or less on admission. When all three of these

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risk factors were present, the cesarean delivery rate was 61%.

In 2013, a large prospective cohort study in Ireland assessed labor induction in 2,000 white women without diabetes mellitus who had varying BMIs.³ Common indications for induction were postdates, prolonged rupture of membranes, gestational diabetes, and preeclampsia. Bishop scores were not reported, but prostaglandins were administered if the cervix was unfavorable, and amniotomy was performed when the cervix was favorable. Oxytocin was added if necessary. Compared with primigravida women with normal BMIs, obese primigravida patients were nearly twice as likely to require a cesarean delivery (20% vs. 35%; $P < .006$.) There was no apparent difference in cesarean delivery rates when comparing multigravida women.

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