

The hormonal milieu by different labor induction methods, in women with previous cesarean section: a prospective randomized controlled trial

Maya Frank Wolf^{1,3}, Inshirah Sgayer^{1,3}, Areej Asslan^{2,3}, Eilam Palzur^{2,3}, Oleg Shnaider^{1,3}, Jacob Bornstein^{1,3}

¹Department of Obstetrics and Gynecology, ²Gynecological Research Laboratory, Galilee Medical Center, Nahariya, ³Azrieli Faculty of Medicine, Bar Ilan University, Safed, Israel

INTRODUCTION

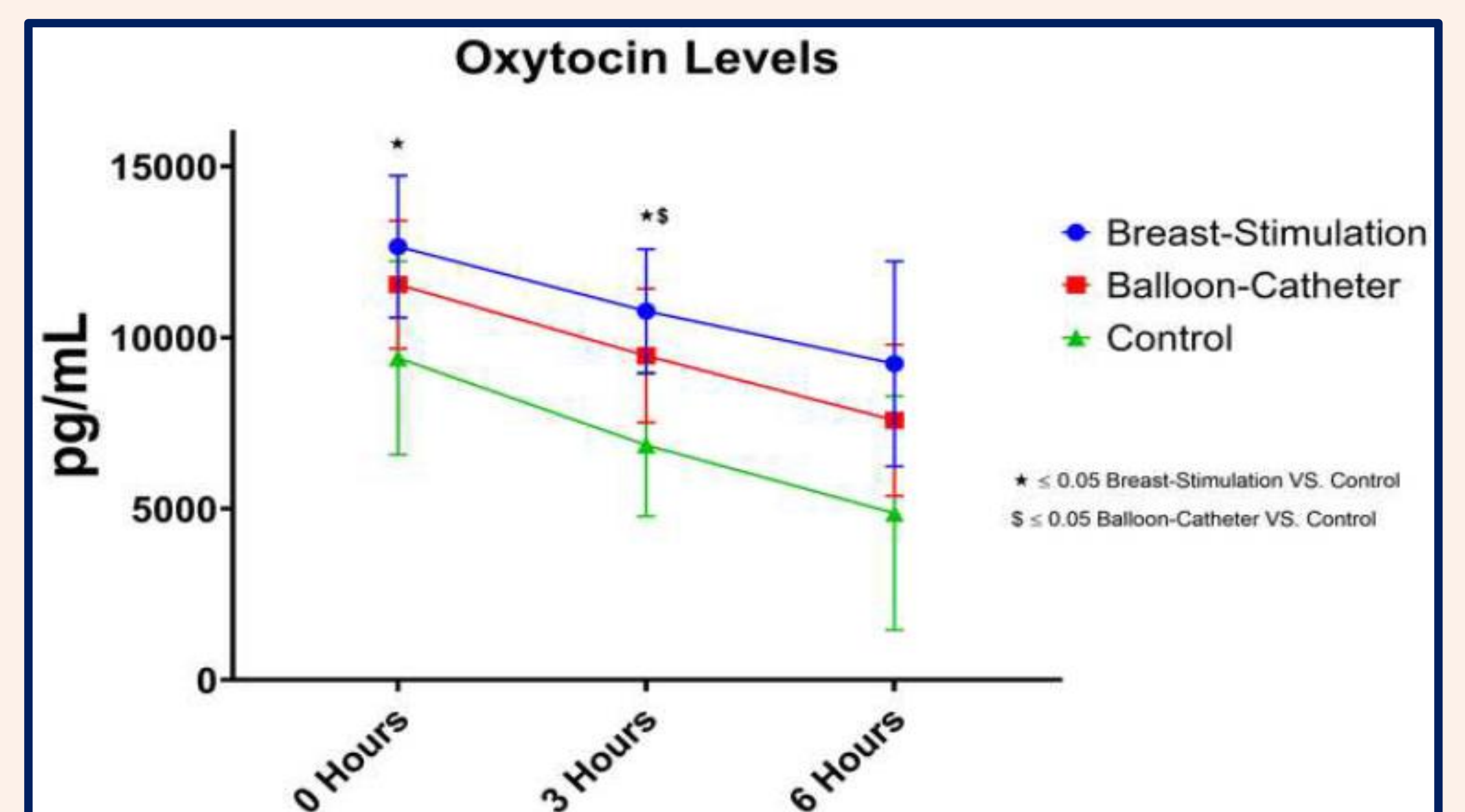
The physiological pattern of hormonal and signaling molecules associated with labor induction is not fully clear. We conducted a preliminary study in order to investigate hormonal changes during labor induction in women with previous cesarean section.

METHODS

87 women at term, with previous cesarean section, were randomized to undergo induction of labor by breast stimulation or intracervical balloon and compared with spontaneous labor (controls). Maternal serum levels of oxytocin, prostaglandin F_{2α}, prostaglandin E₂, prolactin, estradiol, and cortisol were analyzed at 0, 3, and 6 h post-induction initiation. Fetal umbilical cord hormones were measured.

RESULTS

No significant difference was found in the induction-to-delivery time or mode of delivery between the induction groups. Maternal serum oxytocin levels decreased to a lesser extent in the breast stimulation group vs. the control group ($p=0.003$, $p<0.001$). In the breast stimulation and control groups, prostaglandin E₂ levels increased as labor progressed ($p=0.005$, 0.002 , respectively). Prostaglandin F_{2α} levels decreased over time in the balloon group ($p=0.039$), but increased in the control group ($p=0.037$).



CONCLUSIONS

Both induction methods had similar outcomes. The hormonal studies ascertained the hypothesized mechanisms, with oxytocin level higher during breast stimulation and lower in balloon induction. These observations could help clinicians determine the appropriate method for cervical ripening in women with previous cesarean section. Larger future studies are needed to examine the effect of these hormonal trends on the rate of successful labor induction and complications, such as uterine rupture, in women with previous uterine scars.