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SUMMARY

Predictors of successful labour induction -multi-factor analysis

Induction of labour is increasingly common medical procedure. The main indications are post-term pregnancy, premature rupture of membranes, gestational diabetes mellitus, hypertension in pregnancy, intrahepatic cholestasis of pregnancy, as well as foetal growth restriction and large-for-gestational age neonates or stillbirths.

This was a retrospective cohort study conducted at Gynecology and Obstetrics Ward of Solec Hospital in Warsaw. I analysed course of 214 labour inductions in 2019 using the SAS System. The most common indications in my study were post-term pregnancy, premature rupture of membranes and gestational diabetes mellitus. The average age of patient was 30.6 years (CI 95%: 29.972-31,234). The most patients were primiparous -61.2% of study group. There were 152 vaginal labours (71.03%) and 62 caesarean deliveries (28.97%). The main indications for caesarean delivery (CD) were non reassuring foetal heart rate and cervical dystocia.

Nulliparity ($p=0.0015$), hypertension in pregnancy ($p=0.0067$), post-term pregnancy ($p=0.0067$) and patient's obesity -BMI >35 ($p<0.05$) are linked to the risk of CD. In nulliparous patients factors associated with an increased risk of CD include maternal age greater than 30 years. Risk of caesarean delivery increases if the birthweight is over 3500 g (95% CI: 3448-3655), if dinoprostone was used in cervical ripening ($p=0.005$) and if the labour was induced with prostaglandin ($p=0.004$). Foetal gender and age of multiparous women weren't connected to the failure of labour induction.

Multiparity ($p=0.0015$), BMI <30 of the patient (95% CI: 28.577-29.756), favourable cervix (95% CI: 7.657-8.237), induction with oxytocin infusion ($p=0.0025$) and such indications as gestational diabetes mellitus, premature rupture of membranes, LGA and decreased foetal movement are predictors of successful labour induction ($p=0.0067$).

The cervical effacement is the most correlated parameter for the prediction of successful labour induction among the all parameters examined in the Bishop score. The correlation is strong before cervix ripening (Phi Coefficient 0.187), as well as before induction of labour (Phi

Coefficient 0.139). The consistency of the cervix is also a good predictor of successful induction, when it is examined before cervix ripening (Phi Coefficient 0.181), in opposite to the cervical dilatation (Phi Coefficient 0.08). The most predictive parameter of the Bishop score before labour induction is cervical effacement and the weakest correlation is between foetal head station (Phi Coefficient 0.005) and successful labour induction.

The Correlation Coefficients for parameters examined in the Bishop score are higher before cervix ripening than before induction.

Cervical scores, including less components than Bishop score, like the simplified Bishop score of Laughon, are useful in everyday practice and have good predictive value of successful labour induction -according to the study.