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Original Article

Comparative Study of Intracervical Dinoprostone Gel and Vaginal Misoprostol for Induction of Labour

Dr. Reshma Meena[1]; Dr. Usha Shekhawat[2]

[1] 3rd YEAR PG RESIDENT,Department of obs-gynae, Mahatma gandhi medical college & hospital, Jaipur
[2] Head of department,obs-gynae Mahatma gandhi medical college & hospital, jaipur

ABSTRACT

There has been a rise in the incidence of labour over the past decades and as per WHO Global survey,9.6% deliveries required induction and in developed countries the incidence is up to 25%. IOL using various methods may be associated with an increased risk of Failure to achieve labour, higher incidence of caesarean section, operative vaginal delivery, fetal distress, chorioamnionitis, cord prolapse with artificial rupture of membranes. In our study total 240 patients were induced, amongst them 170 were successfully induced & 24 were failed induction.

Key Words: *Intracervical Dinoprostone Gel; Vaginal Misoprostol*

***Corresponding Author**
Dr. Reshma Meena
3rd Year PG Resident, Department of obs-gynae, Mahatma gandhi medical college & hospital, Jaipur

INTRODUCTION

- Induction of labour (IOL) is the process of artificially stimulating the uterus for onset oflabour, which is performed by medical or natural methods.
- There has been a rise in the incidence of labour over the past decades and as per WHO Globalsurvey,9.6% deliveries required induction and in developed countries the incidence is up to 25%.
- IOL is intended to artificially start uterine contractions leading to progressive effacement and dilatation of cervix and delivery of the fetus.
- It attempts to induce two interlinked components of labour-cervical ripening and uterinecontractility.
- IOL using various methods may be associated with an increased risk of : Failure to achievelabour, higher incidence of caesarean section, operative vaginal delivery, fetal distress, chorioamnionitis, cord prolapse with artificial rupture of membranes.
- Methods of Cervical ripening & induction of labour:

— Mechanical methods-Hygroscopic dilator & catheters

— Pharmacological methods-Prostaglandins, oxytocin's, mifepristone – Sweeping ofmembranes, amniotomy.

- Prostaglandins act on the the cervix to enable ripening by no.of different mechanism.

— They alter the extracellular ground substance of cervix

— Increase the activity of collagenase in the cervix

— They cause an increase in elastase,glycosaminoglycans,dermatan sulphate &hyaluronic acid levels in cervix.

- Twodifferent preparations of prostaglandins used for cervical ripening & IOL are
- Dinoprostone gel (PFE2 analogue)
- Vaginal misoprostol (PGE1 analogue).
- The dinoprostone application contains 0.5 mg dinoprostone in a 2.5 ml syringe, can berepeated in 6 hours and should not exceed three doses in 4 hours.

- The method of administration that has been well known is endocervical dinoprostonegel.
- Though this is widely used, the disadvantage is that it is expensive & required refrigeration for storage.
- Later a comparably cheap ,safe and effective vaginally administered prostaglandin which claims to have limited side effects ,available with the name misoprostol (PGE1) in tabletform.
- Tab.misoprostol routes of administration are orally,intravaginally and intracervically.
- In this study intracervical dinoprostone gel is compared to intravaginal misoprostol in the induction of labour and its efficacy and safety for the mother and fetus

Material and methods

- **Source of data**: 240 patients admitted in labour room of MGMC, Jaipur with an indication forinduction of labour from December 2022 to April 2023.
- It is a prospective cross-sectional comparative study
- Sample size was taken as 120 patients per group

Inclusion criteria:

- ❖ Term pregnancy
- ❖ Single live fetus
- ❖ Vertex presentation
- ❖ Intact membranes
- ❖ Modified Bishop score <6

Exclusion criteria:

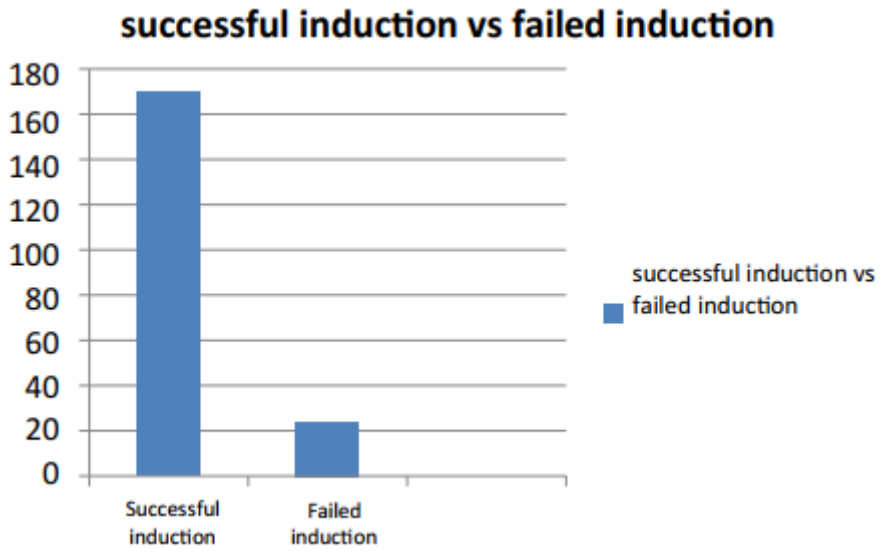
- ❖ Previous LSCS or any uterinee surgery
- ❖ Malpresentation
- ❖ Cephalopelvic disproportion
- ❖ Antepartum haemorrhage
- ❖ Unsatisfactory CTG
- ❖ IUGR
- ❖ PROM
- ❖ Hypertensive disorder of pregnancy

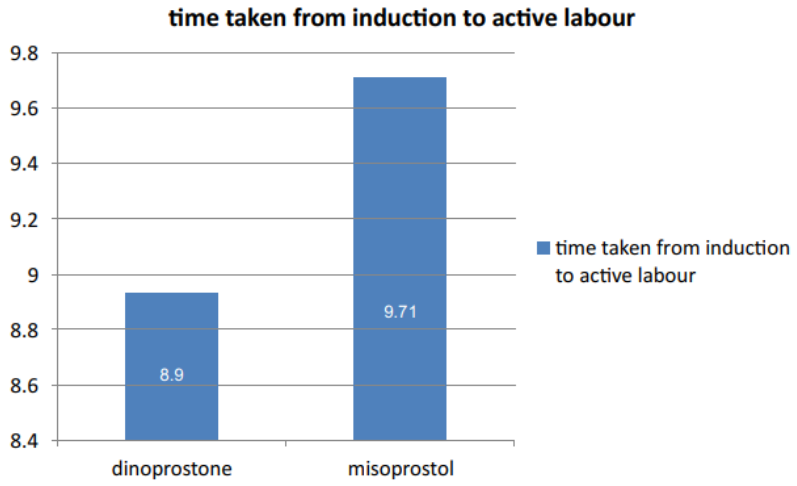
- After informed consent had been obtained, the patients selected for the study were evaluated initially by modified Bishop's score and admission test for fetal wellbeing.Patients with a modified bishops score ≤6 were induced
- A preinduction CTG was obtained prior to every induction & FHR was monitored.
- On confirming the fetal wellbeing the patient in dinoprostone group were induced with 0.5mg I ntracervical dinoprostone gel and repeated for a maximum of 3 doses every 6 hoursas needed.
- Patient in the misoprostol group received 25µg of misoprostol intravaginally in the posteriorfornix and repeated for a maximum of 6 doses every 4 hours as needed.
- After drug insertion, patients were monitored for signs of labour, maternal vital signs, fetalheart rate and progress of labour.
- Oxytocin was started depending on the modified Bishop's score , or for augmentation oflabour in case of an arrest of dilation
- Oxytocin was started at the dose of 2.5 units in 500ml RL and titrated accordingly.
- A partogram was strictly maintained in all patients & maternal parameters including vitalsigns & progress of labour were charted on WHO modified partograph.

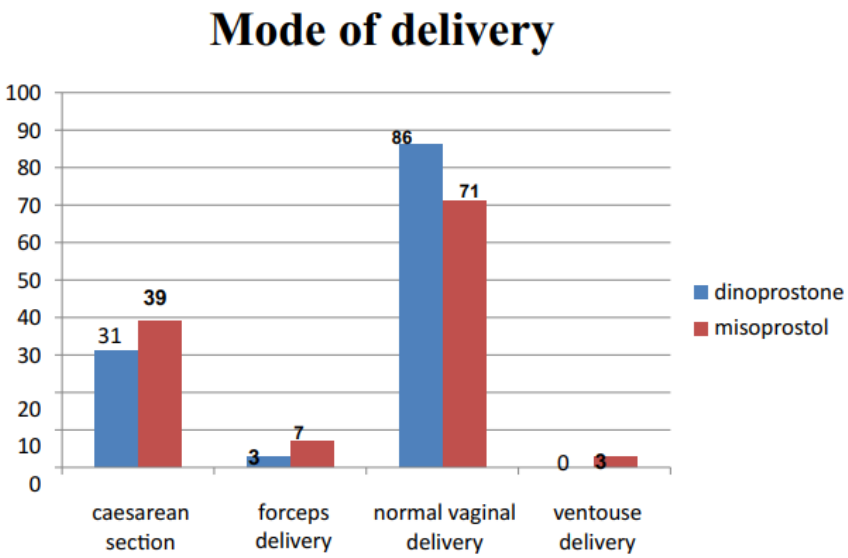
- Any signs of fetal or maternal distress were acted upon by prompt resuscitation & subsequent termination of pregnancy by caesarean section if former was not successful.
- Successful induction was defined as onset of active uterine contractions associated withcervical dilatation of at least 4 cm or modified Bishop score 6 or more.
- Failed induction was defined when a patient has received a max.of 6 doses of misoprostol or amax.of 3 doses of dinoprostone and still the cervical dilation is <4cms.

Observations and results

- **Statistical analysis-**







Discussion & conclusion

- Induction of labour is needed in condition when there is a maternal indication or if the intrauterine conditionis detrimental & if the cervix is unfavourable, then cervical ripening is recommended for successful induction.
- In current scenario, there is a rising trend for induction of labour.
- In our study total 240 patients were induced, amongst them 170 were successfully induced & 24 werefailed induction.
- Amongst the successfully induction,157 were delivered by normal delivery,86 in the dinoprostone group &71 in the misoprostol group, while 10 patients required forceps delivery & 3 patients required ventouse delivery & all 3 were in misoprostol group.
- The induction to active labour time interval was 8.93 hours in dinoprostone group while it was 9.71 hoursin misoprostol group, difference was insignificant.
- In our study there was no significant difference observed in mode of delivery. there was slightly higherincidence of caesarean section in the misoprostol group.
- In our study both the drugs had approximately similar result.
- Misoprostol is cheaper & do not require refrigeration & is stable at room temperature.
- Moreover, misoprostol longer shelf life makes it even more cost effective.
- Misoprostol ease of administration as it is to be kept in the posterior fornix of the vagina & require lessexpertise makes it even more favourable.

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