COMPARISON OF EFFICACY OF PGE2 GEL AND MISOPROSTOL IN PREDICTING THE OUTCOME OF INDUCTION OF LABOR

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ABSTRACT:

Aim: The aim of the study was to compare the efficacy and safety of PGE2 gel and Misoprostol in predicting the outcome of induction of labour.

Materials and methods: A total of 100 pregnant women who have consented to the study and who had an indication of labour induction has been studied. Of these, 50 women were treated with PGE2 0.5 mg gel every 6-8 hours and another 50 women treated with misoprostol 25 µg every 6-8 hours. Factors such as parity, gestational age, induction to delivery interval, need of oxytocin, indications of induction, indication for caesarean section, maternal and neonatal outcomes were studied. Data was analyzed using Microsoft Excel. **Results:** Indications and patient characteristics were comparable in the two groups. PGE2 induction resulted in more vaginal deliveries (74% Vs 62%) and fewer caesareans (26% Vs 38%) compared to the misoprostol treated group. The PGE2 group had a shorter induction to the vaginal delivery interval compared to the misoprostol group (16.08 +/- 8.10 Vs 19.15 +/- 10.51). The maximum number of doses required for induction in the PGE2 and misoprostol groups was compared and found to be almost identical. Maternal and neonatal outcomes were almost identical in two groups.

Conclusion: PGE2 0.5 mg gel is more effective in labour induction when compared to 25 µg vaginal misoprostol.

Keywords: Induction to delivery interval, gestational age, parity, caesarean section.

INTRODUCTION:

'Induction of labour' is the stimulation of contractions of the uterus using mechanical and/or medical methods to induce progressive dilation of the cervix and subsequent delivery.[1][3] It is the most common and important clinical procedure in obstetrics.[3] Labour induction is suggested when the advantages of childbirth are greater than the dangers of continuing the pregnancy.[1][2][3] More than 80% of inductions are for post-date pregnancies and pregnancy-induced hypertension.[3] Before induction, one must ensure the gestational age of the patient as well as pulmonary maturity of the fetus.[1][3]

Induction of labour with 'Prostaglandins' (PGs) promotes both ripening of cervix and contractions of myometrium.[5] PGE2 gel and Misoprostol (PGE1) are most commonly used

for inducing labour. A drawback of prostaglandins is their ability to induce excessive uterine contractility, which can increase perinatal morbidity.[6] (Graves G et al 1985).

PGE2: Intracervical application of 0.5mg PGE2 gel is the gold standard for cervical ripening. Dosing may be repeated after 6 hours for 3 or 4 doses if required.[7] The women should be in bed for 15-30 minutes following application of gel and is monitored for uterine activity and fetal heart rate.[1] The local application of prostaglandin E2, results in direct softening of the cervix by three mechanisms. 1. It alters the extracellular ground substance of the cervix (softens it), 2. It increases the activity of both the smooth muscle of the cervix and uterus.[8] 3. It leads to the formation of gap junction which is necessary for the coordinated uterine contractions of labor.

Misoprostol: A dose of 25µg transvaginally every 3 hours to a maximum of four doses or 50µg every 4 hours is found as effective as PGE2 for cervical ripening and labor induction.[10] A significantly higher proportion of patients receiving Misoprostol achieved vaginal delivery within 12 hours.[11] Study also shown that, 68.1% of patients receiving misoprostol achieved a vaginal delivery within 24 hours.[12] There is also an increased caesarean delivery rate due to uterine hyperstimulation when compared with that from PGE2[9] (Buser and collaborators, 1997).

MATERIALS AND METHODS:

For the present study, approval of Institutional Ethics Committee, Durgabai Deshmukh hospital was taken. This randomized perspective observational study was conducted for 6 months in department of Gynecology, Durgabai Deshmukh hospital, a 300 bedded multispecialty hospital.

A study was conducted in pregnant women with labour induction, who were admitted to the Durgabai Deshmukh Hospital. Baseline demographic data was collected from the patient case report. Subjects are divided into two groups based on specific drug received for labour induction. Group-A: Subjects receiving PGE2 gel and Group-B: Subjects receiving Misoprostol. Mean and standard deviation values have been measured using Microsoft Excel. Data analysis was conducted using chi-square and z-tests. The obtained P value was considered significant if it was less than 0.05. The results obtained were presented using tables and graphs.

RESULTS:

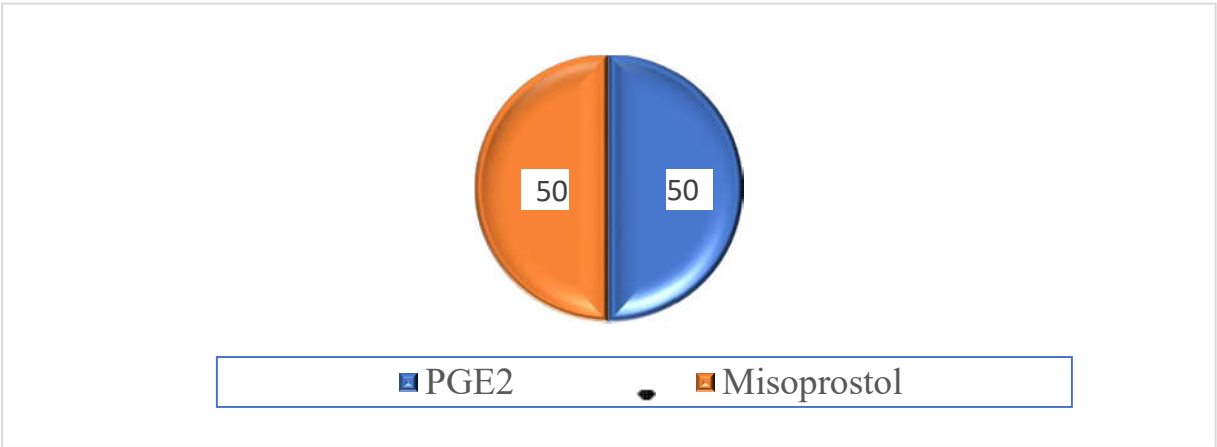

Figure-1: Total no. of patients

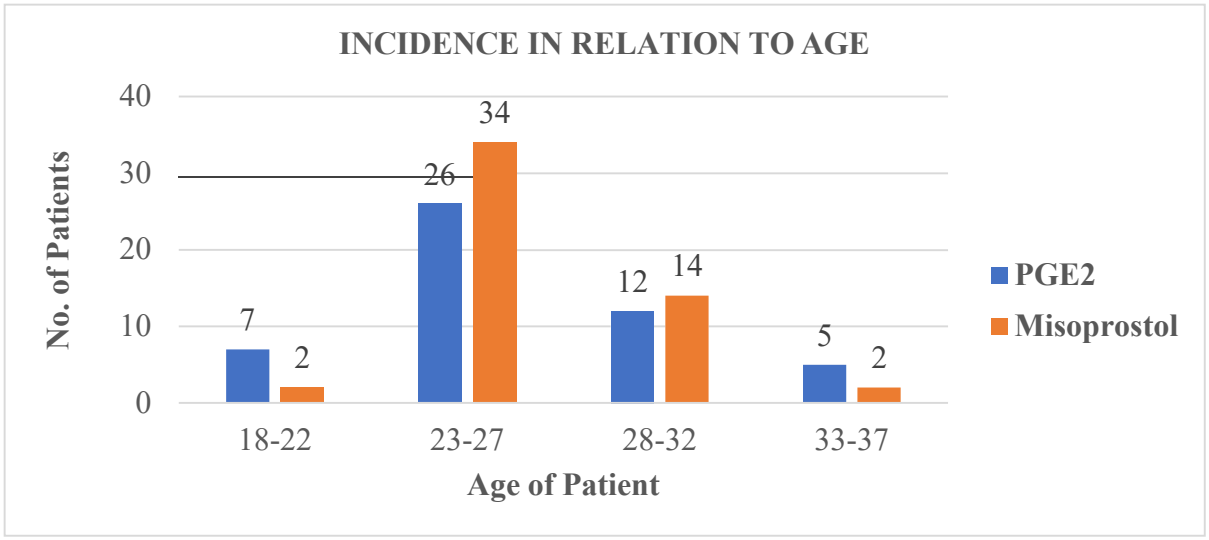

Figure-2: Incidence in relation to age

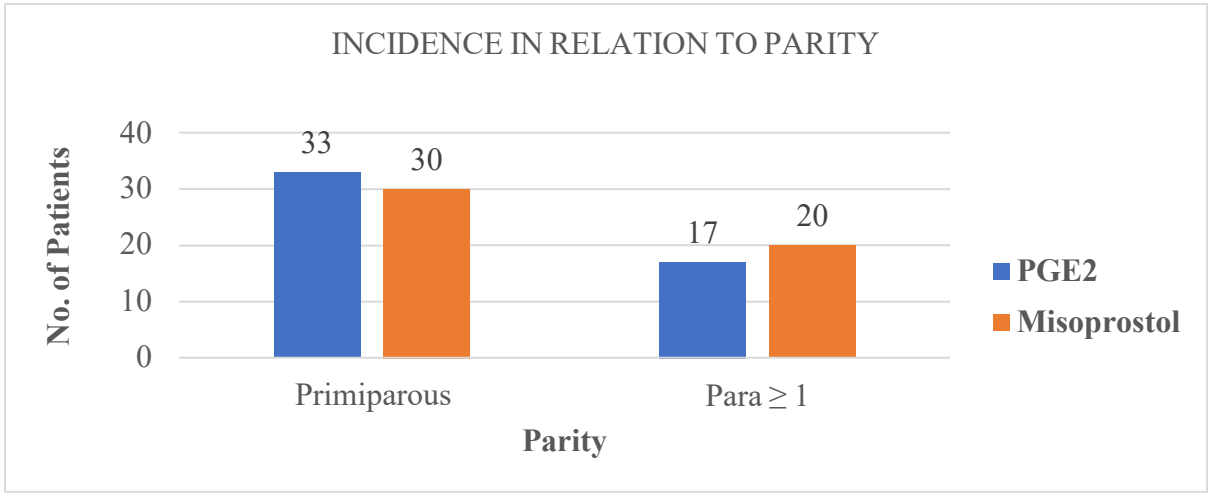

Figure-3: Incidence in relation to parity

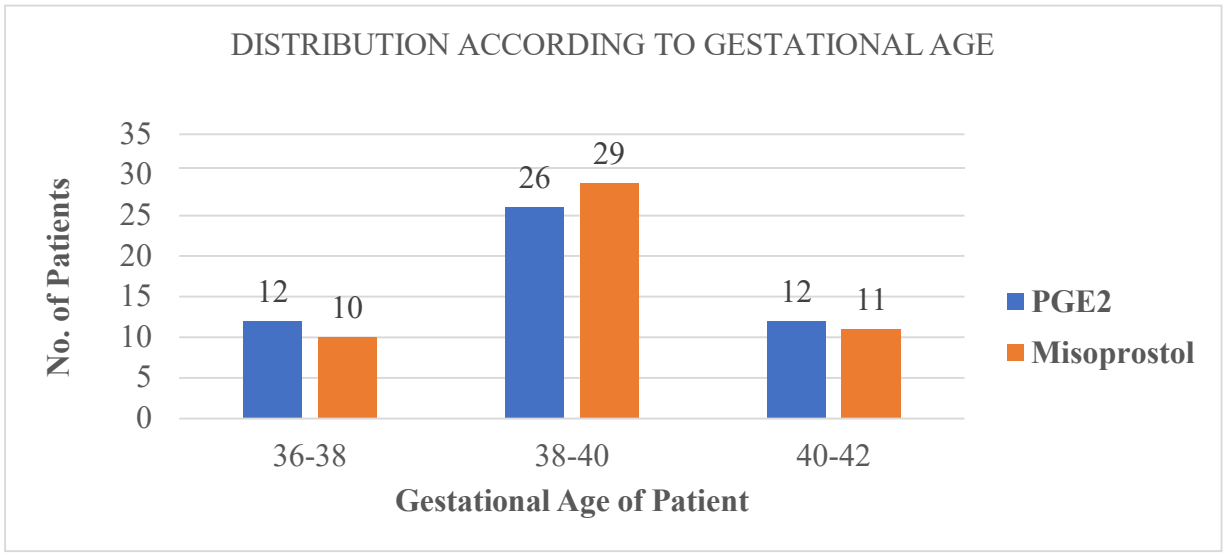

Figure-4: Distribution according to gestational age

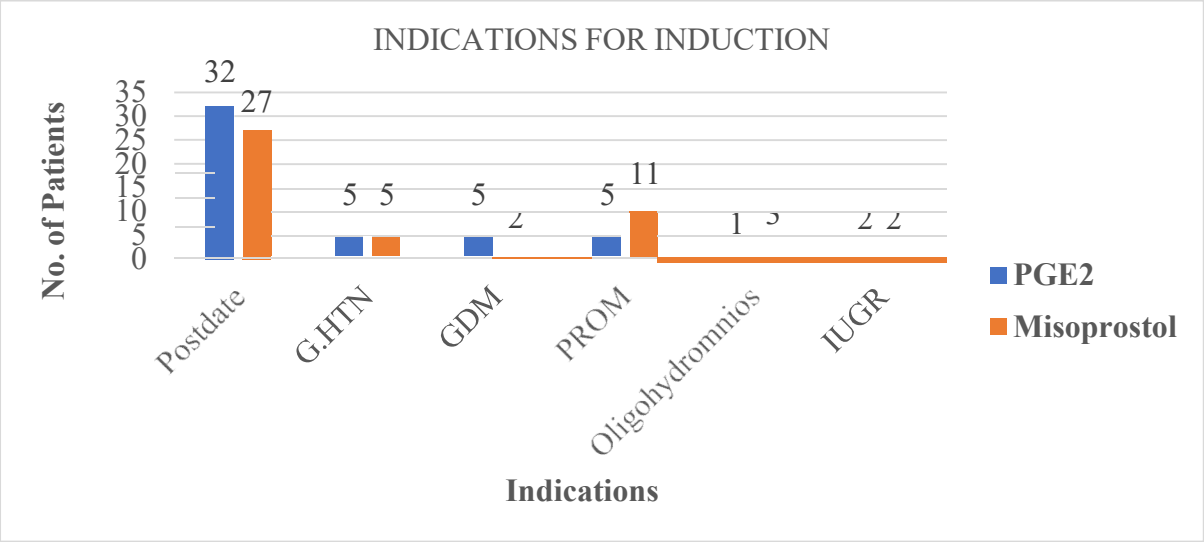

Figure-5: Indications for labour induction

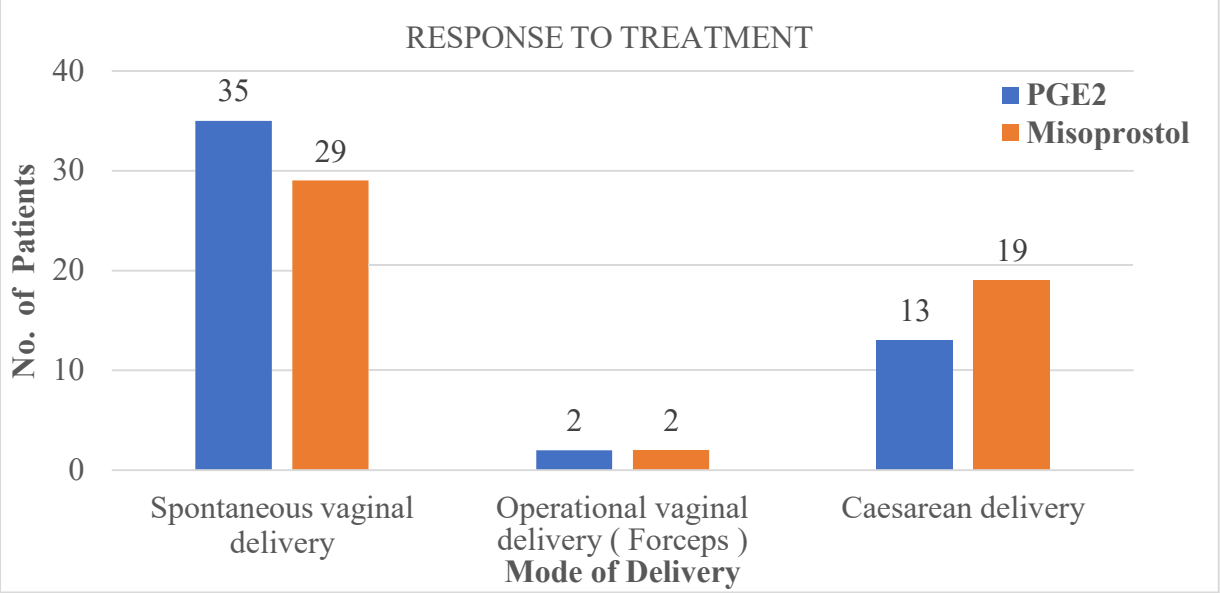

Figure-6: Response to treatment

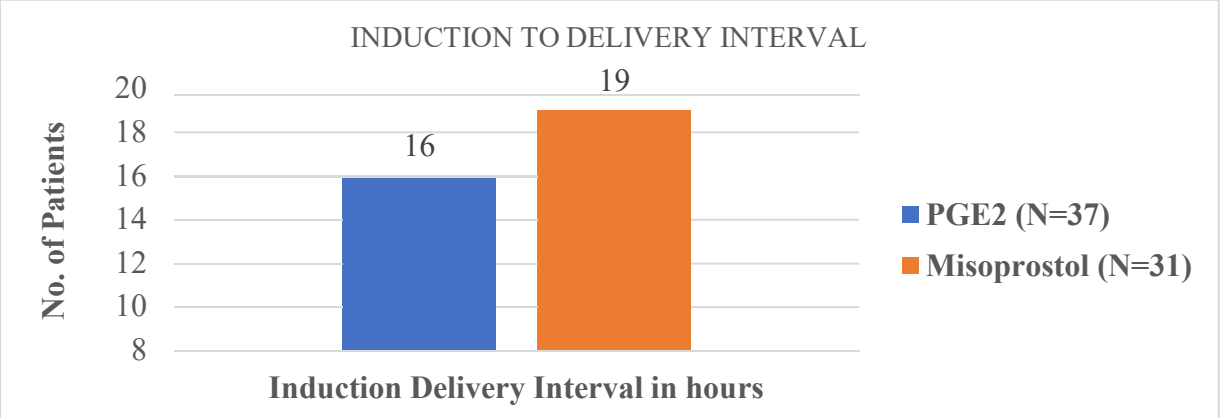

Figure-7: Induction to delivery interval

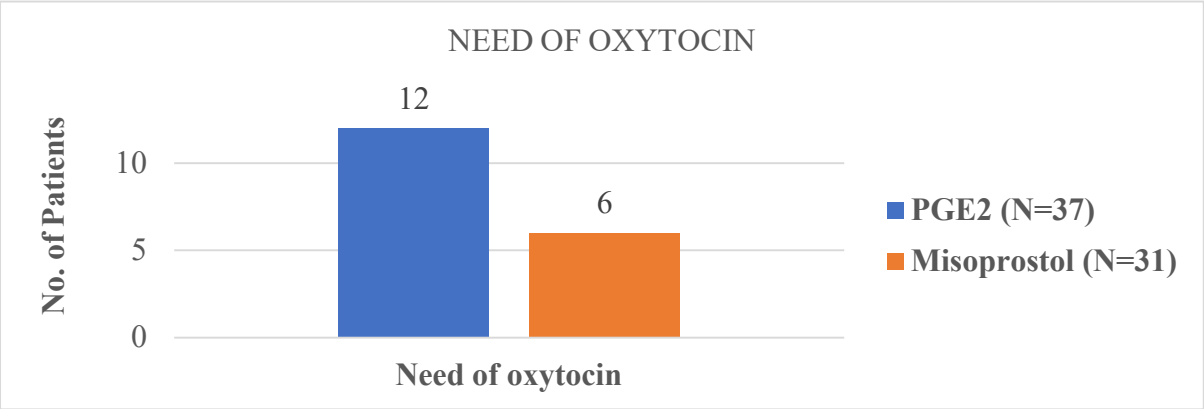

Figure-8: Need of oxytocin

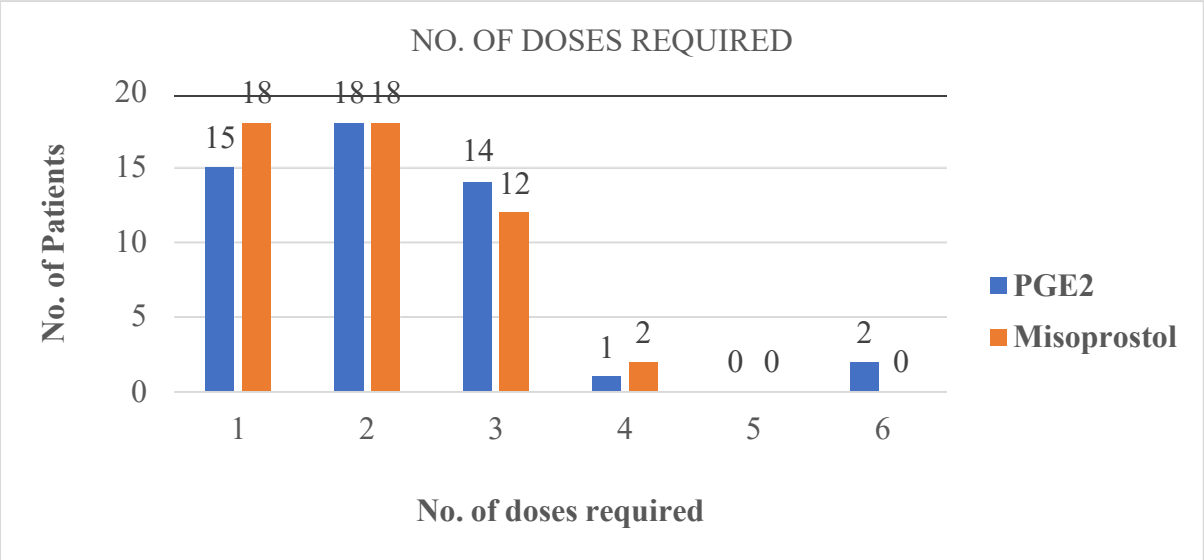

Figure-9: No of doses required to induce labour

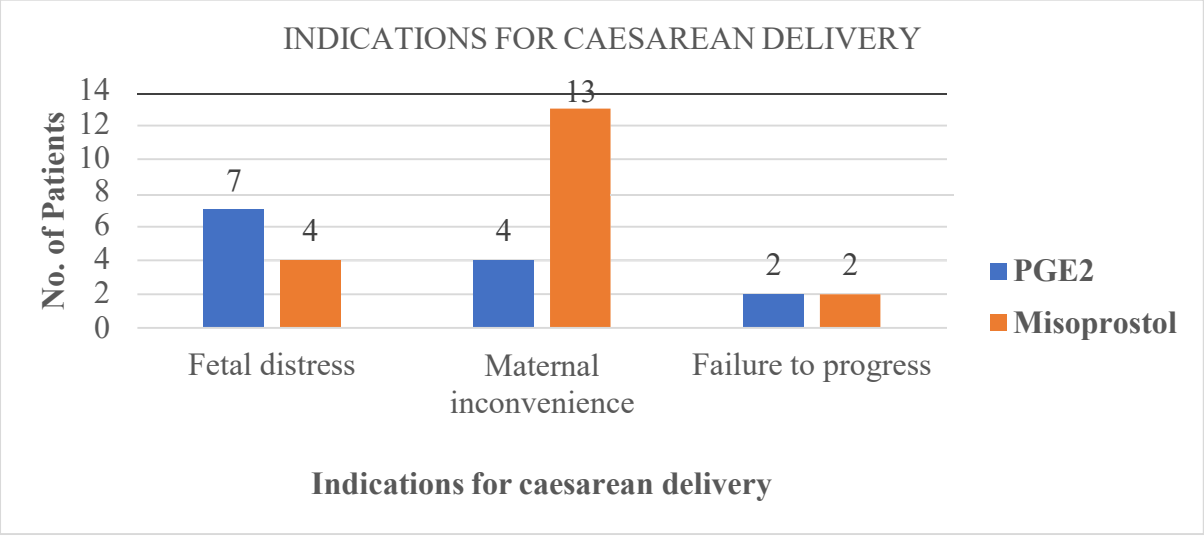

Figure-10: Indications of caesarean delivery

DISCUSSION:

A total of 100 pregnant women who have consented to the study and who had an indication of labour induction has been studied. Of these, 50 women were treated with PGE2 0.5 mg gel every 6-8 hours and another 50 women treated with misoprostol 25 µg every 6-8 hours.

- Indications and patient characteristics were comparable in the two groups.
- PGE2 induction resulted in more vaginal deliveries (74% Vs 62%) and fewer caesareans (26% Vs 38%) compared to the misoprostol treated group.
- The PGE2 group had a shorter induction to the vaginal delivery interval compared to the misoprostol group (16.08 +/- 8.10 Vs 19.15 +/- 10.51).
- The requirement of oxytocin for augmentation was almost the same in both the treatment groups (P=0.22). Oxytocin required was 32.43% and 19.35% in the PGE2 and misoprostol groups respectively.
- Operative vaginal deliveries were comparable in both groups.
- LSCS due to fetal distress was higher in the PGE2 group and LSCS due to maternal inconvenience was higher in the misoprostol group.
- The maximum number of doses required in the PGE2 and misoprostol groups was compared and found to be almost identical, with no statistical significance (0.60).
- Maternal outcomes were almost identical in two groups.
- Neonatal outcomes were almost identical in two groups.

CONCLUSION:

PGE2 0.5 mg gel is more effective in labour induction when compared to 25 µg vaginal misoprostol.

PGE2 gel group had a shorter induction-vaginal delivery interval, more vaginal deliveries within 24 hours of induction, less caesarean rate. One disadvantage with PGE2 was more need for oxytocin when compared with misoprostol. LSCS due to fetal distress was higher in the PGE2 group and LSCS due to maternal inconvenience was higher in the misoprostol group. Further research is therefore required to find out the ideal dose and prevent such complications.

ETHICS AND CONSENT:

Permission was obtained from the ethics committee. Upon receiving the informed consent form, all patients who meet the study criteria were included in the study. All the relevant and necessary data was collected from patient case reports.

CONFLICTS OF INTREST: None

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