INTRODUCTION

Induction of labour is defined as the process of artificially stimulating the uterus to start labour. Cervical ripening is an essential prerequisite for induction and is assessed with Bishops scoring system. The local (intracervical) application of PGE2 results in softening of the cervix. It leads to gap junction formation that is necessary for the coordinated increases in activity of the smooth muscle of the cervix and uterus. PGE2 increases the activity of the smooth muscle of the cervix.

MATERIAL & METHODS

A prospective study carried out in a tertiary care Hospital in Obstetrics & Gynecology department, Jaipur. The study sample includes 200 women. All women with Bishop score<6 were included in the study for various reasons at term. Dinoprostone (PGE2) is a synthetic preparation of naturally occurring prostaglandin E2. PGE2 gel is available in a 2.5 ml syringe for an intracervical application of 0.5mg of Dinoprostone.

RESULTS:

Neonatal outcome was measured according to the Apgar score. The baseline data of the study population (maternal age, gravidity) were comparable in the two groups. Majority of cases in PGE2 gel instillation single & double group were in 22-25 yrs age group The most common indication for induction of labour (Table no.1) was postdate in single vs double PGE2 gel group (55% versus 48%). Of the primigravida who required single induction and double PGE2 gel mean duration for onset of labour were 4.53+1.34 vs 9.31+1.85 hours respectively. The Mean duration of labour (Table no.2),was less in the single versus double PGE2 gel application group (3.03 vs 3.78 hrs) which is statistically significant (P<.01). Table no.3 shows oxytocin augmentation was required in single versus double PGE2 gel (80%/vs 60%) oxytocin augmentation not required in single vs double application was 20% vs 39% cases. This difference was statistically significant  (P<.01). In our study Vaginal delivery rate was 59% (59%) in the single PGE2 group and 75% (75%) in the double PGE2 group which was statistically significant (P<.01). Thus less rate of cesarean section seen in the double PGE2 (Table No.4).

Table no. 5 shows that maternal complications which included G.I. complication, hyperstimulation, PPH, vaginal tear etc were almost equal among both the group. Cervical tear was seen in 1 case in group 1, while no case reported from 2 group. Hyperstimulation was significantly found to be more in the double application group. Table no. 6 shows Apgar score <7 was seen in 8% vs 11% in the single vs doublePGE2 application & the difference was not statistically significant. Neonatal intensive care unit (NICU) admissions were 11% vs 7% in the single vs double PGE2 group & this difference was not statistically significant.

DISCUSSION:-

A randomized prospective study done to compare the efficacy of single versus double PGE2 gel application for induction of labour in cases of unfavourable cervix. Out of the total 200 cases, 91.5% were 19-29 years of age. Iz Mackenzie’ reported maximum number of cases in their study of one vs two doses of PGE2 gel for induction of labour were the age groups20-29 yrs.

Out of cases requiring single application ,55%,31% & 14% were
G1, G2 & G3+ gravid respectively. Of the cases requiring double application, 80%, 14%, & 6% were among G1, G2, & G3+ gravid respectively. Table no. 1 shows majority of patients were induced due to post dated pregnancy. Other indications were PROM, PIH, oligoamnios, pregnancy with jaundice, & mild IUGR. Warke et al studied 68.1% patients required augmentation of labour with oxytocin drip. This was similar to our study i.e. 60% required oxytocin in single PGE2 group. Marconi et al studied that after induction single vs double application of PGE2, oxytocin augmentation was needed in 28% vs 72%. There was significant difference between the duration of labour in the single versus double application of PGE2 gel group (74% vs. 52%) within 4 hours of induction of labour \( P < 0.5 \) (Table no. 3). Warke et al reported induction delivery time was 16.25 hours and 18.5 hours in Group I and Group II respectively (single versus double application group).

Various studies have shown considerable variation as far as induction delivery time is concerned ranging from 9 hours (Noah et al) to 17.9 hours (Thiery et al) Of total cases PGE2 single vs double gel application, percentage of normal delivery, cesarean section, instrumental delivery was 59%, 27%, 14% vs 75%, 20%, 5% cases respectively. Difference in normal delivery was found to be statistically significant \( P < 0.05 \) Facchinetti F et al 2012 reported that Dinoprostogel insert reduces cesarean rate in nulliparous women to 24% compared to other ways of stimulation. The rate of maternal and neonatal complications was comparable in both the groups.

**CONCLUSION**

Dinoprostogel application is efficient in achieving cervical ripening successfully in nulliparous as well as multiparous along with the reduction in latent phase of labour and total delivery time. Second PGE2 application significantly improves chances of cervical ripening in cases with unfavorable cervix. There is a decrease in total duration of labour and increase in chances of vaginal delivery but strict vigilance is required for both maternal and fetal parameters specially in second applications Considering good maternal and neonatal outcome, the dinoprostone gel can be used as the first choice for elective induction of term pregnancy.

**REFERENCE**