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2ND TRIMESTER PREGNANCY;
EXTRA-AMNIOTIC PGF2α AND INCREASING IV OXYTOCIN INFUSION FOR TERMINATION

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ABSTRACT… Objectives: To compare the effectiveness of prostaglandin $F_{2\alpha}$ by extra amniotic route and I/V oxytocin infusion for induction of labor in 24 hours. **Study Design:** This was a randomized control study. **Place and Duration of the Study:** This study was conducted at the department of Obstetrics & Gynaecology, Civil Hospital, Bahawalpur from March 2017 to October 2017. **Materials and Methods:** A total number of 104 patients (52 given PGF2α and 52 increasing infusion rate of I/V oxytocin) between 13 to 26 weeks of gestation were enrolled using non-probability purposive sampling technique. Two groups 'A' and 'B' were formed having patients of comparable age, parity and gestational age to minimize the effect of confounders. Both the groups were compared for induction delivery interval (hours), and complications. Chi square test was used as test of significance and any value <0.05 was taken as statistically significant. **Results:** The ages of patients ranged from 16-45 years (28.93 ± 8 years). Gestational ages were between 13-26 weeks (mean 16.48 ± 6.43 weeks). The parity ranged from 0-9 (mean 3.9 ± 2.87). Missed abortion was the major reason for TOP, seen in 71 (68.3%). In Gorup-A, all patients aborted / delivered within 28 hours from the start of the infusion so got successful induction in 100% patients whereas 5 (9.6%) patients failed in Group B. In Group A, successful induction of delivery was done in significantly less interval (11.27±6.2 hours) as compared to Group B (18.4±10.8 hours) with a statistically significant p value of 0.016.There were 3 (5.8%) patients in Group A and 10 (19.2%) in Group B who developed one or more complications and this difference turned out to be statistically significant (p=0.038). No major complications developed in any of the groups. **Conclusion:** Extra amniotic PGF2α is more effective than I/V Oxytocin for termination of pregnancy.

Key words: Prostaglandin F2α, Oxytocin, Induction Delivery Interval.

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INTRODUCTION

Termination of pregnancy (TOP) in 13-26 weeks accounts for about 15% of all pregnancy terminations. TOP consists ofmore than 60% of key complications and about half of all abortions associated maternal mortality.[1] TOP is a vital topic to talk aboutin particular due to its complications and psychological trauma.[2] With increasing gestational age, the complications linked with TOP also increase. Through 13-26 weeks of gestation, surgical or medical methods are the mainstay for TOP.[1]

Amongst most common causes of TOP in 2nd Trimester, congenitally anomalies and missed abortions are named.[2] Commonly, uterus is not able to force out products of conception. For congenitally anomalous fetus, neural tube defects are the leading cause for TOP.[2,3]

When pregnancy is nearing term, conventional methods are reasonablyhelpful for induction of labor as uterine responsiveness is good in this phase. But during 2nd trimester, TOP is not easy to deal with. A rise of 3-4 fold is linked to TOP in 2nd trimester as compared to TOP in 1st trimester.[3]

Lots of advancement have been made in the last couple of decades to better abortion techniques for its effectiveness, simplicity, safety and adequacy.[4] For TOP in 2nd trimester, many methods and techniques are used but main goal

for obstetricians have always been to find the most useful and secure method for TOP that has the least expulsion interval coupled with fewer side effects. Prostaglandins are a subject of interest around the world in the management of these cases. Existence of Prostaglandins initiates labor while their nonexistence means continuation of pregnancy. $PGF_{2\alpha}$ has a potent oxytocin action, joining effects of priming and ripening the cervix prior to dilatation.[5]

$PGF_{2\alpha}$ was studied to be connected with delivery/expulsion within 24 hours in 94% patients in comparison to 70% with I/V infusion of oxytocin.[5] Others[6] also designated $PGF_{2\alpha}$ to be efficient and safe for TOP in 2nd trimester.

This study was conducted as number of cases approach for termination of pregnancy in daily practice in gynae & obstetrics in Civil Hospital, Bahawalpur and no work was seen to compare the effectiveness of prostaglandin $F_{2\alpha}$ by extra amniotic route and I/V oxytocin infusion for induction of labor in 24 hours.

MATERIALS AND METHODS

This was a randomized control trial conducted at the department of Obstetrics & Gynaecology, Civil Hospital, Bahawalpur March 2017 to October 2017.

A total number of 104 patients (52 given PFG and 52 increasing infusion rate of I/V oxytocin) between 13 to 26 weeks of gestation (diagnosed on ultrasound, and presented with intrauterine fetal demise or anomalous fetus) were enrolled using non-probability purposive sampling technique. Patients with twin pregnancies were not included in the study. Two groups 'A' and 'B' were formed having patients of comparable age, parity and gestational age to minimize the effect of confounders. First, coming illegible patients were offered two folded slips written 'A' and 'B' on them. Later, coming patients were placed either in group 'A' or 'B' depending on their comparable confounders.

The study was approved by ethical committee of Civil Hospital, Bahawalpur then all the patients fulfilling the inclusion/exclusion criteria were included in the study admitted in Gynae Unit, Civil Hospital, Bahawalpur. Informed written consent from the patients were taken.

Insertion of afoley catheter to all the patients (14-18 french sizes according to the gestational age) was done through the cervix under direct vision and strict antiseptic technique. Balloon was inflated with 10 ml of sterile water and the catheter was strapped to the patient's thigh under slight traction. PGF2α extra amniotically was administered to all 52 patients in Group A. PGF2α (5 mg) 1 ml injection, diluted with 19 ml of sterile water and loading dose of 3 -5 ml to fill up the dead space was given. After that, 1-2 ml of this solution was repeated into the same space after every half to one hour. If labour did not commence within 24 hours, the same was repeated the next day.

In Group B, 52 patients were administered I/V oxytocin infusion 20 to 25 units in 1000 cc 5% dextrose at 30 drops per minute and titrated with contractions. If labor did not commence, the induction was repeated the next day. The method was considered as failed if still no improvement noted, and an alternate method was implemented.

Data was analyzed using SPSS Version 13. Frequency and percentages were computed for success and commencement of labor within 24 hours. Both the groups were compared for induction delivery interval (hours) and complications. Chi square test was used as test of significance and any value <0.05 was taken as statistically significant.

RESULTS

The ages of patients ranged from 16-45 years (28.93 ± 8 years). Gestational ages were between 13-26 weeks (mean 16.48 ± 6.43 weeks). The parity ranged from 0-9 (mean 3.9 ± 2.87) No significant difference of these demographic variables between these two groups.

When patients were compared for induction delivery interval (hours) amongst both groups, Group A had a significantly better outcome for

induction delivery interval, having a p value of 0.004. (Table-I)

Induction Delivery Interval (hours)	Groups		Total
	A	B	
4-9	27 (51.9%)	14 (26.9%)	41 (39.4%)
10-15	16 (30.8%)	13 (25%)	29 (27.9%)
16-21	2 (3.8%)	7 (13.5%)	9 (8.7%)
22-27	6 (11.5%)	4 (7.7%)	10 (9.6%)
28-33	1 (1.9%)	8 (15.4%)	9 (8.7%)
34-36	0	1 (1.9%)	1 (1.0%)
36+	0	5 (9.6%)	5 (4.8%)
Total	52	52	104

Table-I. Distribution of patients according to induction delivery interval
Chi Square = 19.055 P value = 0.004

Missed abortion was the major reason for TOP, seen in 71 (68.3%), intrauterine death in 21 (20.2%) and congenital abnormalities in 12 (11.5%). In Gorup-A, all patients aborted / delivered within 28 hours from the start of the infusion so got successful induction in 100% patients whereas 5 (9.6%) patients failed in Group B. (Table-II)

In Group A, successful induction delivery was done in significantly less interval (11.27±6.2 hours) as compared to Group B (18.4±10.8 hours) with a statistically significant p value of 0.016. (Table-II)

Induction Delivery Interval	Groups		Total
	A	B	
Successful within 24 hours	45 (86.5%)	34 (65.4%)	79 (76%)
Successful delivery from 25-36 hours	7 (13.5%)	13 (25%)	20 (19.2%)
Failed to Delivery in 36 hours	0	5 (9.6%)	5 (4.8%)
Total	52	52	104

Table-II. Distribution of patients according to successful induction delivery
Chi square = 8.332 P value = 0.016

There were 45 (86.5%) patients in Group A who delivered within 24 hours as compared to 34 (65.4%) in Group B. Complete expulsion took place in 41 (78.8%) patients in Group A as compared to 36 (69.2%) in Group B. The remaining patients required surgical evacuation of the uterus. There were 3 (5.8%) patients in Group A and 10 (19.2%) in Group B who developed one or more complications and this difference turned out to be statistically significant (p=0.038). No major complications developed in any of the groups. (Table-III)

Complications	Groups		Total
	A	B	
One or more complications	3 (5.8%)	10 (19.2%)	13 (12.5%)
No Complications	49 (94.2%)	42 (80.8%)	91 (87.5%)
Total	52	52	104

Table-III. Complications between both the groups
Chi square = 4.308 P value = 0.038

DISCUSSION

PGF2α is not costly and regarded safe when given extra amniotically. Other common prostaglandins used as alternative methodsfor induction of labor are PGE2 pessaries, vaginal inserts and intra cervical gels.[7,8] Other methods areless affordable and not always reachable. Cost is one of the major concernwhen choosing a treatment option in a country like Pakistan so there is always a need to discover an appropriate and less costly method that is more efficacious than the conservative method like oxytocin infusion.

An earlier finding[9] noted a mean induction delivery interval as 12.6 hours and all the patients delivered successfully. Our results were comparable (11.27 hours) and all of our patients in Group-A also delivered successfully. Perry and colleagues noted this interval as 17.5 hours with the use of intra amniotic PGF2α. Labour induction with misoprostol[10,11] has been linked to have a successful 24 hour evacuation rate of 40-60% while the mean abortion time is higher (around 22 hours) as compared to PGF2α. Retained products of conception were found to be in13 (25%) patients in Group A as compared to 16 (30.1%) in Group B. These results were higher than what previous investigators found.[12]

Results regarding complications in our study were similar to what had been noted in the previous findings.[5] RCOG survey[13] also got similar complications rate what we found here but Scotish[14] data revealed these to be higher. No major complication was reported in this study that proved the tolerability of PGF2α. Diarrhea, vomiting and fever were the most common ones. No increase in febrile morbidity was seen by the use of cervical foley catheter in this study. PGF2α group had shorter induction delivery interval andhigher success rate with fewer complications.

CONCLUSION

Extra amniotic PGF2α is more effective than I/V Oxytocin for TOP. Extra amniotic PGF2α resulted in less number of complications with better tolerability.

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Courage is grace under pressure.

– Ernest Hemingway –

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
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2	Arshia Sabir	Methodology, Study research analysis	
3	Hafiz M. Anwar ul Haq	Drafting and Discussion	
4	Hafiz M. Ejaz ul Haq	Data collection and analysis	