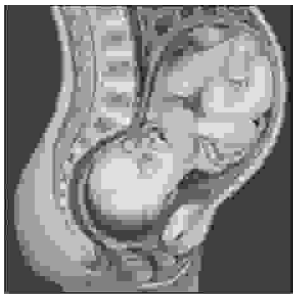
ORIGINAL PROF-1114

THERAPEUTIC ABORTIONS;

EFFICACY OF INTRA- VAGINAL MISOPROSTOL IN COMPARISON TO EXTRA AMNIOTICALLY ADMINISTERED PROSTAGLANDIN $F_2\alpha$.



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ABSTRACT... fariha_altaf@hotmail.com **Objectives:** The study was conducted to compare intravaginal misoprostol with extra amniotic prostaglandin F2 alpha (PGF2α) for labour induction in therapeutic abortions from 10-28 weeks gestation. **Design:** A prospective study experimental. **Setting** At Military Hospital, Rawalpindi. **Period:** From March–December 2002. **Materials & Methods:** 68 patients with indications for therapeutic termination. Groups were assigned through non-probability convenient sampling procedure. In one group 200µg of misoprostol in the form of Tab Arthrotec 50 was administered every two hours up to three doses. Other group of patients had received extra-amniotic PGF2α solution. Main outcome measures were induction-abortion interval, cost-effectiveness and the frequency of side effects. Induction was considered successful where abortion was achieved within 24 hours. **Results:** The average induction-abortion interval in the misoprostol group was 16.09±9.38hours.Successful abortions were achieved in 79.41 percent(27/34).Total failures were seven of 34 cases. In the PGF2α group, all women aborted within 20.24±11.57 hours, 76.47 percent (26/34) of which aborted within 24 hours. **Conclusion:** The acceptable expulsion time, clinically insignificant side effects and the abortion rate obtained, showed that misoprostol by vaginal administration may be an alternative method for interrupting gestation of 10-28 weeks.

Key words: Misoprostol, Therapeutic Abortion, Termination of Pregnancy.

INTRODUCTION

Options for first and second trimester cervical ripening and labour induction are numerous and varied. Major advances have been made in developing the use of prostaglandins for termination of pregnancy at almost any stage of gestation[1-6]. Since Karim and Filshie described use of prostaglandins[7], they have been widely used. Most studies of induction of labour have utilized PGF2α[7,8,16]. In current practice, misoprostol, an orally active, stable prostaglandin (PGE1) analogue has entered its clinical use in Obstetrics and Gynaecology on a wide scale without having been registered for such

use[9,10]. According to the American College of Obstetricians/ Gynaecologists (ACOG) misoprostol has been used so frequently and so effectively that it has become the treatment of choice "for ripening the cervix prior to induction of labour among pregnant women[11-15,17]. Various dosing regimens have been used with varied timings, so regimens tested are difficult to compare and often extremely cumbersome for women. Most regimens have investigated use of intravaginal misoprostol[17,21]. We still have little information whether oral or vaginal administration is more effective in early abortion or whether one route is preferable to the other in terms of side effects[11]. Dose of 100-1200µg has been reported to be efficient and safe[8]. At M.H Rawalpindi, we carried out this investigation in the interest to prove misoprostol as an efficacious, inexpensive and transportable product making it ideal for wide use, particularly in resource poor settings in comparison to PGF2α which is quite expensive.

The objective of the study is to study the labor-inducing potential of misoprostol and compare its efficacy with PGF2αµ in terms of:

1. Induction-abortion interval
2. Cost effectiveness
3. Side effects

MATERIALS AND METHODS

The study was carried out at department of obstetrics and gynaecology,Military Hospital, Rawalpindi. All patients were admitted.

Inclusion Criteria were spontaneous incomplete abortion, missed abortion from 10 weeks – 28 weeks, major structural fetal anomalies and indications for therapeutic abortion. Lower segment cesarean scars upto three were included. Bishop score zero- four remained the same in all

Exclusion Criteria were patients with history of bleeding diathesis, or unexplained vaginal bleeding, uncontrolled seizure disorder like epilepsy, uterine malformation like bicornuate uterus, uterus didelphy, molar pregnancy, ectopic pregnancy, metroplasty scar and septic abortion.68 patients participated; each group included 34 women. No patient withdrew from the protocol. The two groups were similar with regard to mean age, gravidity, parity, weight and gestational age. Indications for pregnancy termination did not differ significantly between the two groups (Table-I). Before starting induction, patients were fully assessed as per protocol. Counselling was done for termination and all underwent a complete history and physical examination. In group I misoprostol was inserted intravaginally; 200µg tablet of Arthrotec 50 every two hours for three doses. Women in group II received PGF2α solution through 12F Foley catheter inserted above the internal cervical os. Intravenous oxytocin augmentation was constituted 02 hours after the last dose. Continuous vital monitoring was done. Baseline data included maternal age, gravidity, parity, estimated gestational age, indication for induction and an initial Bishop score. Retained products of conception were removed under general anaesthesia. Patients were kept under observation for a minimum of 12 hours before being discharged. The other outcome measures were the study about complications and cost effectiveness.

Data were analyzed using the SPSS 8.0 for windows statistical package, continuous variables that were normally distributed were presented as means with standard deviations and ranges and compared by using the 'student's t test'. Where appropriate statistical analysis was done using 'chi square test'.

A P value of < 0.05 was considered statistically significant.

RESULTS

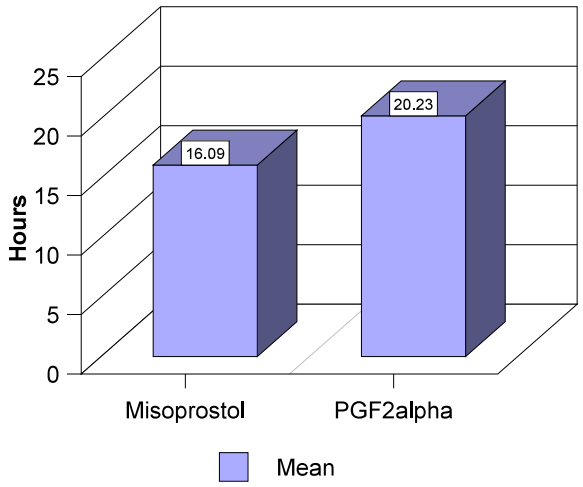
68 women were recruited to the study during the ten month period from March 2002 to December 2002. 34 women were assigned to group I protocol; 34 women were assigned to group II protocol. The patients characteristics were similar between the two groups(Table-II). There was no significant difference between groups in Bishop Score at the time of admission.

Table-I. Indications for termination of pregnancy (n=34)			
Indication	**Misoprostol**	**PGF2α**	**Total**
Intrauterine fetal death	03	04	07
Congenital abnormalities	08	09	17
Hydrops fetalis	01	00	01
Multiple abnormalities	00	01	01
Genetic causes	01	04	05
Maternal medical reasons	03	01	04
Missed abortion	14	15	29

Table-II. Patient's characteristics (n=34)		
Mean age in years	26.85±4.36*	27.06±4.69*
No. Of primigravida	04	06
No. Of multigravida	03	28
Parity		
No. Of nullipara	04	08
Multipara (range 1-8)	26	30
Mean parity	2.00±1.72*	2.21±1.41*
Mean gestational age in weeks	19.94±5.27*	19.53±6.01*
Haemoglobin (gm%)	11.06±2.04*	11.57±2.94*
Mean weight (kg)	53.29±5.12*	52.88±4.78*
Previous h/o termination	11	06
Presence of uterine scar	06	03
Figures are range; results are shown as mean±SD. (P=0.05)		

There were no technical failure in the two groups. Treatment failure was considered as those in which abortion could not be achieved within 24 hours and those who required surgical evacuation for incomplete abortion. Induction abortion interval (Fig 1) in misoprostol group was 16.09 hours ± S.D. 9.38 where as in PGF2α group all women aborted within 20.23 hours ± S.D.11.49 (n=34 for both groups). The difference in induction abortion interval in two groups is statistically non-significant (p=0.114>0.05). 79.14% success rate (27/34) was achieved in group I as compared to 76.47% in group II.(Fig 2). Difference is non-significant as chi-square value is calculated to be 0.085 which is less than the tabulated value(3.84).The rate of incomplete abortion is also lower in misoprostol group i.e., 8.8% (3/34) compared to 15% (5/34) in the PGF2α group(chi-square 0.566<3.84 which is tabulated value).The need for oxytocin augmentation was low for group-I-32.3%compared to group II-38%(13/34). The frequency of side effects after either misoprostol or PGF2α is shown in (Fig 3).

Fig-1. Difference in the mean induction abortion interval b/w two drugs



The cost of single tablet of Arthrotec 50 (200µg) is Rs.13/- and the cost of one Inj of PGF2α Rs.450/- .The average cost per patient for misoprostol group is Rs.28.29/-. The average relative cost per patient in misoprostol group was significantly less compared with PGF2α treatment group (p=0.000<0.05). Rather cost per single patient in PGF2α group was the total cost

incurred for 34 cases in the misoprostol group(Fig 4).

Fig-2. Comparison of induction success of two drugs

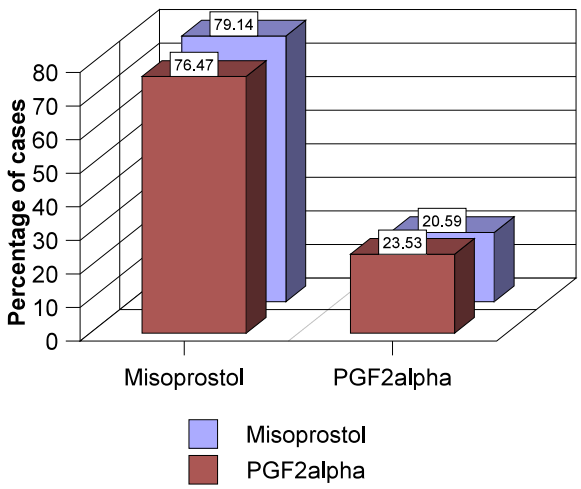
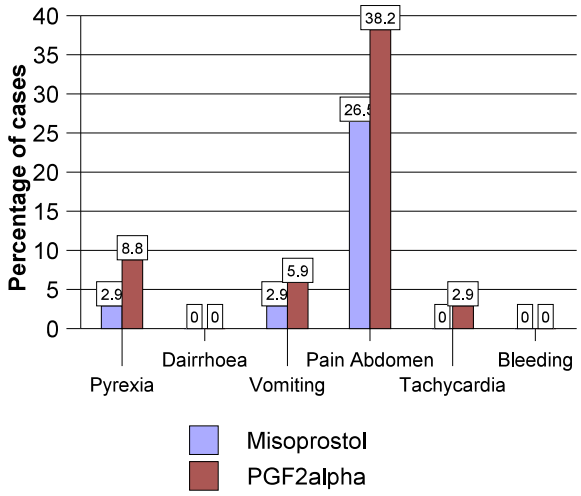
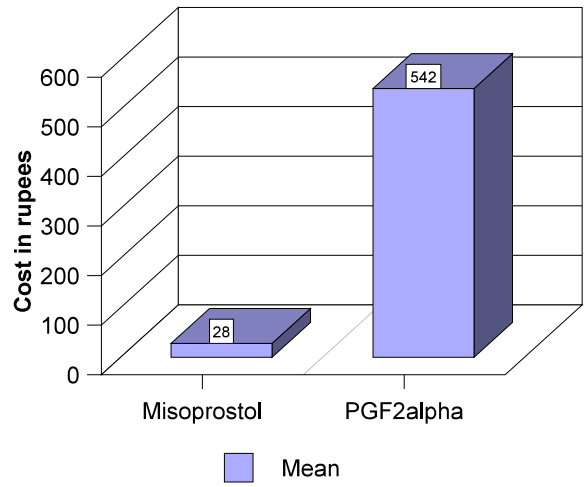


Fig-3. Observed side effects of the two drugs



It is important to note that all these results support misoprostol as an effective labour inducing agent in comparison to PGF2α in the light of available data but owing to small sample size , these results cannot be generalised.

Fig-4. Difference in the mean cost of two drugs



DISCUSSION

The purpose of the present study was to compare vaginal misoprostol treatment with the routine PGF2α treatment. This was limited in a sense that dosing regimen was used for short period and did not allow repetition of doses for more than 24 hours. It was not blinded because both preparations were different - one in tablet form and one in injection form. It was also not placebo controlled due to ethical reasons. The results of our study are encouraging suggesting that misoprostol is a safe, effective and economical drug[19]. This confirms the results of the study by Munthali J[18] who reported a success rate of 83.6%. He established that misoprostol is as effective as PGF2α rather preferred method for midtrimester TOP. Ghorab MN[22], reported a success rate of 85-90%. He concluded that endocervical administration of misoprostol appears to be effective and well tolerated with less side effects. In his study induction abortion interval for the extra amniotic PGF2α and intracervical misoprostol were 16±5.9 hours and 10.3±4 hours (mean±S.D.) respectively. The results of our study have shown that age, parity, gestational age do not affect the success rate of medical abortion using misoprostol. The use of misoprostol is associated with minimal side effects especially when used intravaginally. It is worth mentioning that misoprostol was used successfully in patients with previous uterine scar. This

has been proved from results of study by Hossain N[20]. Efficacy of misoprostol has been proved over PGE2[19]. However the number of patients in our study is still too small to make definitive conclusions. Misoprostol is inexpensive and stable at room temperature. In our study relative cost of whole group induced by misoprostol is equivalent to cost of one patient in PGF2α group. This is a remarkable difference and has been shown by other studies also e.g., Munthali J[18] who has preferred use of misoprostol over PGF2α for poor countries with restricted health budgets.

I would like to say that our investigation supports the superior efficacy of misoprostol as a labour induction agent in comparison to PGF2α .

CONCLUSION

It is easy to conclude from our study that misoprostol is a wonder drug and causes expeditious abortions. Due to small group, difference in induction abortion interval and rate of complete abortion is statistically non-significant for both misoprostol and PGF2α. Increased access to and information on use of misoprostol could help reduce maternal mortality and morbidity particularly where these problems are severe. Further research is needed on large scale to identify optimal regimens for misoprostol for reproductive health indications. Registering misoprostol with drug regulatory authorities could increase access and safe use of this drug. The low cost, wide availability, ease of administration and storage makes it appealing for developing countries.

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God hath given you one face, and make yourselves another.

William Shakespeare