Comparison of Misoprostol and PGF2α for Second Trimester Termination of Pregnancy

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Aims:: To compare the effectiveness of vaginally administered misoprostol with extra-amniotic prostaglandin F2alpha (PGF2alpha) injection for termination of pregnancy. **Study Design:** Interventional study. **Setting:** This study was conducted in gynae unit III Nishter hospital Multan over period f 15 months. **Material & Methods:** Patients admitted to labour ward with pregnancy of less than 20 weeks of gestation requiring termination of pregnancy due to fetal and maternal causes were included in this study. A detailed history was taken followed by clinical examination especially the cervical scoring was done. Sixty patients were randomly assigned to receive either tablet misoprostol (cytotec) intravaginally or extra-amniotic injection of prostaglandin F2α. Induction-expulsion interval, need for evacuation and the incidence of side effects were analyzed for both groups. **Results:** Successful termination was achieved in 98% patients with misoprostol and 94% with PGF2α. Induction expulsion interval was < 12 hrs in 80% patients in misoprostol group and 60% in PGF2α group ,(P value < 0.000). Evacuation rate was 23.3% with PGF2α and 10% with misoprostol group. The incidence of prostaglandin-associated pyrexia, vomiting and diarrhea were significantly increased in the PGF2alpha group ($p<0.05$).
Conclusion: In this study, vaginal misoprostol has been found to be more effective and associated with a shorter induction to expulsion interval, fewer ERPOC for incomplete evacuation and less side effects when compared with extra-amniotic PGF2alpha. In view of its effectiveness, as shown in this study, vaginally administered misoprostol has the potential to provide a better option for medical abortion in many parts of the world.
Key words: PGF2-alpha, Extra-amniotic, cytotec , ERPOC.

Termination of pregnancy (TOP) involves the removal of pregnancy without any expectation that the fetus will survive. It is indicated where the benefits to mother outweighs the benefit of continuing the pregnancy. Termination of pregnancy can be achieved by surgical means or pharmaceutical agents singly, in combination or as adjunct to surgical method. Surgical method carries more risk for woman's health than medical method which is safe, effective and favorable[1].

Decision about the method to be used for terminating pregnancy is influenced by variety of factors including gestation, maternal health and parity, indication for termination, maternal preferences and obstetric unit facilities[2]. However the objectives of any method are to provide a safe and acceptable technique both for patient and staff, causing lowest possible risk for future fertility and pregnancy outcome.

The use of prostaglandin analogs for cervical ripening markedly enhances the success of inductions[3]. Misoprostol, PGE1 analogue, is synthetic prostaglandin which is marketed as antiulcer drug under trade name of cytotec[4]. Vaginally administered misoprostol has been used for cervical ripening and labor induction[5]. Induction of labor with PGF2α in second trimester of pregnancy is also safe and effective. The main concern of the obstetrician is to provide the most effective and safest regimen which combines a shortest induction-expulsion interval with least side effects[6].

Material and methods:
This study was conducted in gynae unit III Nishter hospital Multan over period f fifteen months. Patients admitted to labour ward with pregnancy of less than 20 weeks of gestation requiring termination of pregnancy due to fetal or maternal causes were included in this study. A detailed history was taken followed by clinical examination especially the cervical scoring before induction. Routine investigation including hemoglobin estimation, Blood grouping/Rh factor, random blood sugar and urine examination was done. Fetal gestation and malformation was confirmed by ultrasonography. All 60 women included in this study were counseled and explained regarding the procedure, outcome and possible complications and were randomized in 2 groups each having 30 patients. Group I received tablet misoprostol (cytotec) intravaginally in a dose of 100μg 4 hourly to maximum of five doses and Group II received injection of prostaglandin F2α 5mg/ml diluted in 19ml of normal saline given at dose of 75μg stat followed by 25μg/hour via intracervical catheter in extra-amniotic space. Efficacy of two drugs was compared by induction-expulsion interval, either termination was complete or require surgical evacuation and maternal complications of these drugs like failed induction hemorrhage, pyrexia, nausea, vomiting, tachycardia and pain. The chi-square test was applied and P-value of <0.05 was taken significant.

Results:
During this study period, 60(7.5%) out of 800 registered obstetric patients required termination of pregnancy either due to fetal (66.6%) or maternal (33%) causes. Successful termination was achieved in 98% patients with misoprostol and 92% with PGF2α. Mean time of induction of pharmacologic treatment to abortion was 11.2+/_5.9 hrs in

the PGF2alphal group and 8.4+/_4.8 hrs in the misoprostol group (p = 0.001). Induction expulsion interval was < 12 hrs in 80% patients in misoprostol group and 60% in PGF2α group (p=< 0.000). In this study 23.3% patients require ERPOC after induction with PGF2α and only 10% patients with misoprostol (p=<.000). The incidence of prostaglandin-associated pyrexia, vomiting and diarrhea were significantly increased in the PGF2alpha group 16% than in misoprostol 10% (p<0.00).

Table I: Induction expulsion interval

Induction interval time	Misoprostol	PGF2α
<12 hours	24	18
13-18hours	3	3
19-25hours	2	6
26-30hours	1	3
Total	30	30

Table II: Complications of drugs

Complications	Misoprostol	PGF2
Pain	4	10
Tachycardia	1	2
Vomiting	1	1
Nausea	2	2
Shivering	2	2
Pyrexia	3	5
Hemorrhage	1	1
Failed Induction	1	1

Discussion:

Advances in prenatal diagnosis make it possible to detect much fetal pathology for which a termination of pregnancy (TOP) is possible[7]. There is as yet no consensus as to the most efficient protocol of such late abortions. In pregnancies which go beyond 3 months, the use of prostaglandins has simplified this procedure Extra-amniotic injection, as well as intravaginal application of prostaglandins, has been used to terminate second trimester pregnancies[8]. Our goal in this study was to compare the efficacy of extra-amniotic injection of prostaglandin F2 alpha (PGF2alpha) and intravaginal application of misoprostol in terminating second trimester pregnancies.

In this study, vaginal misoprostol has been found to be more effective and less painful, compared with extra-amniotic PGF2alpha, for the termination of pregnancies which is comparable to Mullin[9] and Majoko[10] . It is associated with a shorter induction to expulsion interval, fewer ERPOC for incomplete evacuation and less side effects when compared with extra-amniotic PGF2alpha. In proper dosage the risk of complications is low with misoprostol and most of the patients achieve completion of expulsion in less than 12 hrs. It is a well-tolerated drug[11,12]

The primary advantages of misoprostol over PGF2α are cost and convenience. It is an effective, easy to use, safe and cheap drug for termination of second trimester pregnancy[13]. Misoprostol (Cytotec) has been extensively investigated in the past few years for use in cervical ripening and labor induction. Marketed as a gastric cytoprotective agent, the drug is feasible, safe and acceptable agent for cervical ripening and labor induction, although it is not FDA-labeled for that purpose[14].

Misoprostol can play a very important role in the practice of obstetrics and gynecology in resource poor countries where cost of other prostaglandins is prohibitively high and temperature maintenance is a problem[15]. In view of its effectiveness, as shown in this study, vaginally administered misoprostol has the potential to provide a better option for medical abortion in many parts of the world. Larger, randomized comparative studies should be carried out to assess its potential advantages. With proper guidelines, and education misoprostol can be safely used in the existing setting by qualified practitioners in selected patients.

Conclusion:

Induction of labour with prostaglandin in second trimester is not only safe but is also cost effective. In countries like Pakistan this drug can be used safely by qualified practitioners in properly selected patients with minimum side effects.

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