Original article:

Study of efficacy and acceptability of sublingual misoprostol for early medical abortion

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Abstract

Aims: Present study was conducted to determine the efficacy and the side effects of sublingual misoprostol in causing complete expulsion of products of conception in early pregnancy failure.

Methods: A hospital based observational, prospective study was conducted from July 2012 to June 2013. Women with an sonographic diagnosis of early pregnancy failure, singleton pregnancy, less than 12 weeks gestation, who had not experienced uterine cramping, no active bleeding (Os closed on per vaginal examination) and were in a normal frame of mind to give consent and willing for a surgical evacuation in case of failure with medication or active bleeding, were included in the study.Total 60 patients were enrolled for study.

Results: Mean gestational age was 7.87±1.3 weeks. 51.67% women had an induction abortion interval of 12 to 18 hours. 36.67% aborted in 18 to 24 hrs. Only 5 % aborted in 6 to 12 hours. Mean Induction abortion interval was 17.95±3.58hours. Duration of induction to abortion interval of more than 24 hours was seen in 6.67% and was considered true drug failure and these women were surgically evacuated. Efficacy of protocol was 93.33% in achieving complete abortion.

Conclusion: Misoprostol is an effective abortifacient in terms of its low cost, long shelf life, lack of need for refrigeration and it's easy availability. The advantage of evacuation by Misoprostol is that it includes no surgery and hence no anesthesia. Present study participants find the highly effective misoprostol regimen acceptable.

Keywords: Missed Abortion, Misoprostol, Efficacy, Early Pregnancy Failure.

Introduction

Medical abortion helps women avoid a surgical procedure seeking early pregnancy termination. Medical abortion failure is defined as when woman is unable to avoid an operation for her abortion.[1] In the case of medical abortion, however, patient acceptability is key to the success of the method. Indeed, surgical intervention rates during medical abortion regimes are influenced by patients' attitudes, expectations and tolerance of side effects and by providers', including physicians, nurses, and counselors, understanding and aptitude for using the method. For medical methods of abortion to work successfully, women must commit to completing the regimen, and both women and providers must wait while the therapy takes its course.[1]

Misoprostol-a synthetic prostaglandin E1 analogue, is cheap, stable at room temperature and effective in inducing uterine contractions.[2]

Recent clinical trials had shown vaginal misoprostol to be superior to oral misoprostol. Oral misoprostol peaks in 20 min and is metabolizedin the next hour, vaginal misoprostol's effectivenessis due to the sustained blood level rather than the quick peak and rapid metabolism noted after oral misoprostol.[3] Despite the advantages of vaginal administration

ofmisoprostol, oral administration is still the most commonmode of use in Europe and is the recommendation of the USFood and Drug Administration (FDA).

Misoprostol given vaginally took longer to start working, had a lower peak (peak concentration after 60 mins), but a more sustained effect. Thus, smaller doses were needed when misoprostol was used vaginally. Pharmacokinetics now show that sublingual misoprostol has the shortest onset of action, the highest peak concentration and greatest bioavailability among the routes of administration.[4]

The vaginal route of administration may not be acceptable to many women due to religious and social reasons. The degree of absorption also showed a pronounced individual variation.[5] It has recently been shown that sublingual administration could effectively terminate pregnancy and results in plasma concentrations of misoprostol which are significantly greater than following both oral and vaginal administration.[6,7] Present study was conducted to determine the efficacy and the side effects of sublingual misoprostol in causing complete expulsion of products of conception in early pregnancy failure.

Methods

A hospital based observational, prospective study was conducted from July 2012 to June 2013. Women with an sonographicdiagnosis of early pregnancy failure, singleton pregnancy, less than 12 weeks gestation, who had not experienced uterine cramping, no active bleeding (Os closed on per vaginal examination) and were in a normal frame of mind to give consent and willing for a surgical evacuation in case of failure with medication or active bleeding, were included in the study.

The USG criteria used for diagnosis of early pregnancy failure (missed abortion) were-embryo greater than 7 mm with no embryonic cardiac activity or irregular gestational sac with mean sac diameter greater than 16 mm or a gestational sac more than 15 mm with no visible fetal pole. Total 60 patients were enrolled for study.

After counseling and informed written consent, the women were given sublingual tablet Misoprostol 600 mcg every 6 hourly for 3 doses. The dose was decreased to lessen the side effects. Evaluation was done 6 hours after 3rd dose of misoprostol, i.e.at 24 hours. If the uterus was not felt empty on per vaginal examination or ultrasonography shows products of conception, then dilatation and evacuation was done and was considered a true drug failure.

Results

The mean age of women in the study was 24.13+4.8 years. 71.67% of the women had fetal pole absent or irregular gestational sac in the ultra sonographic findings. Mean gestational age was 7.87±1.3 weeks. 51.67% women had an induction abortion interval of 12 to 18 hours. 36.67% aborted in 18 to 24 hrs. Only 5 % aborted in 6 to 12 hours. Mean Induction abortion interval was 17.95±3.58hours. Duration of induction to abortion interval of more than 24 hours was seen in 6.67% and was considered true drug failure and these women were surgically evacuated. Efficacy of protocol was 93.33% in achieving complete abortion.(Table 1)

Mean induction abortion interval was studied in different gestational ages. Women with less than six weeks gestational age had highest mean induction-abortion interval 21.78±2.1 hrs, while those with gestational age six to eight weeks had least mean induction-abortion interval time of 17.63±2.64 hrs.

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(Table 2)

Other adverse effects requiring treatment were fever/chills, vomiting, diarrhea, headache and mild allergy. Most of women did not find these adverse effects difficult to tolerate. (Table 3)

56.67% women were found to be highly satisfied, 6.67% women were not satisfied because of failure of treatment of Misoprostol, thus requiring surgical intervention. Most women said they would choose the medical method if they were allowed to choose again and would recommend the method to others. During follow-up visits, most of cases had no significant complaints. No women required evacuation on follow-up visit.

Table 1: Induction-Abortion Interval

Induction-Abortion Interval (in hrs)	No.	%	Efficacy
6 – 12	3	5	93.33% (complete abortion)
12 – 18	31	51.67	
18 – 24	22	36.67	
More than 24 hrs	4	6.67	6.67% (True Drug Failure)
Total	60	100.00	

Table 2: Gestational age and Mean induction-abortion interval time

Gestational Age (in wks)	No.	Mean Induction-Abortion Interval +SD (in hours)
Less than 6	4	21.78±2.1
06 to 08	35	17.63±2.64
08 to 10	16	17.97±3.73
10 to 12	5	19.86±2.34
Total	60	17.95±3.58

Table 3: Observed Side Effects

Side Effects	No.	%
Abdominal Pain	17	28.33
Vomiting	8	13.33
Fever / Chills	7	11.67
Diarrhoea (more than 4 episodes)	5	8.33
Headache	4	6.67
Allergic Reaction	4	6.67
Dizziness	2	3.33

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Discussion

Efficacy of misoprostol was 93.33% in achieving complete abortions. Ngoc NT et al.[8](2004) used 800mcg vaginal Misoprostol only single dose and mean induction abortion interval washigh-(21hrs) than present study (17.95±3.58).

Ayres-de-Campos D et al.[9]used Misoprostol 600 mcg vaginally and repeated 4 hourly. Complete medical evacuation occurred in 56.8% with higher side effects due to short interval between doses.

Barcelo F et al.[10]conducted similar studywith 600 mcg sublingual misoprostol every 24 h for two days. But success rate achieved was 87.8% as well as had a very long induction evacuation interval. Kushwah D. S. et al.[11]in their study also reported complete abortion rate to be 92% in 600mcg misoprostol sublingual group and the side effect were hot flashes 24%, diarrhea and nausea 2% and 92% women were satisfied with their study. Tang OS, Lau WN et al.[12]used 600 mcg of misoprostol three hourly up to three doses sublingually with success rates of 87.5%.their interval was shorter and they noticed a higher incidence of diarrhea (70%) and fatigue was experienced.

The reasons for surgical interventions, the side effects, theadverse events, and the acceptability results were similar toother reports published in past. Nearly all women began bleeding within 24 hof using misoprostol (93.33%).

Abdominal discomfort was reported by almost all cases but abdominal pain requiring analgesics was present in 28.33%. Other adverse effects requiring treatment were fever/chills, vomiting, diarrhea, headache and mild allergy. Most of women did not find these adverse effects difficult to tolerate. There were very few adverseevents and no hospitalization nor transfusions.

Conclusion

Misoprostol is an effective abortifacient in terms of its low cost, long shelf life, lack of need for refrigeration and it's easy availability. The advantage of evacuation by Misoprostol is that it includes no surgery and hence no anesthesia. Present study participants find the highly effective misoprostol regimen acceptable.

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