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Research Article

Role of preoperative sublingual misoprostol in reducing need of analgesia and anaesthesia for gynaecological procedures in rural hospital

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ABSTRACT

Background: Many of gynaecological procedures require dilatation of cervix which may cause complications like excessive pain, cervical damage, creation of false tract and uterine perforation. Most of these may be done as outpatient procedures, which may reduce anaesthetic complications and decrease hospital stay. Misoprostol is a prostaglandin E1 which is proven to be effective in cervical priming hence reducing the fore mentioned complications.

Methods: The study was randomized control trial followed a single bind style for two parallel groups. There were two groups, study group (n=100) and control group (n=100). The patients were recruited from the indoor as well as OPD requiring intrauterine procedure (viz D&C, hysteroscopy, HSG). The women of misoprostol group received, 200 microgram of misoprostol sublingualy and the women of placebo group received l mg folic acid 2 hours prior to the intrauterine procedure. Cervical dilatation, time required for the dilatation, cervical resistance, general experience of the patient, side effects, need of anaesthesia and complications were studied.

Results: In present study mean post drug cervical dilatation was 4.08 ± 0.88 in study group which was more than control group 2.08 ± 0.27. It was statistically significant by using student't' test as p value <0.05. It was found that preoperative cervical dilatation was mostly equal in both study group and control group. In the present study it was found that mean time required for cervical dilatation was 36.00 ± 11.19 in study group which was less than in control group 75.50 ± 7.43. It was statistically significant by using 't' test as p value <0.05. Cervical dilatation was required in 25% women in study group and 100% in control group. Anaesthesia was required in 25% women in study group and 100% in control group. Side effects regarding bleeding after post drug cervical dilatation in study group were statistically different as compared to control group. No complications were present in present study.

Conclusions: Misoprostol PGE1 is commercially widely available, safe and cost effective drug which can be used as a cervical ripening/priming agent before all the gynaecological procedures in non-pregnant women as it increases the cervical dilatation and decreases the need of analgesia or anaesthesia.

Keywords: Misoprostol, Sublingual, Cervical priming

INTRODUCTION

Many of gynaecological procedures (hysteroscopy, dilatation & curettage, chromopertubation, IUCD insertion or fractional curettage) require dilatation of cervix. This may cause complications like excessive pain, cervical damage, creation of false tract and uterine perforation and may even hinder performance of the procedure. Most of these gynaecological procedures may be done as outpatient procedures, which may reduce

anaesthetic complications and decrease hospital stay. The incidence of these complications may be reduced if the cervix is primed beforehand. Cervical priming refers to dilating or softening of cervix by mechanical or medical means prior to an intervention. The term refers to pregnant and non-pregnant women, but does not include induction of labour at term.[1] It was shown that misoprostol is effective at priming in non-pregnant women.[2] Cervical priming has been shown to result in reduced operation time, less blood loss and facilitation of mechanical dilatation, when used prior to surgical abortion.[3,4] Cervical priming is especially helpful as a means of pain reduction and can be used either in addition to, or instead local anaesthesia. In addition priming has proven to be of help in difficult clinical indications like in surgical abortions beyond 12 weeks, in multiparous women or in nulliparous women who have previously undergone cervical biopsy, large or multiple fibroids.[5] Misoprostol is a prostaglandin (PG) E1 derivative, was first approved in 1988 by the US Food and drug administration. It is available commercially and used to decrease the ulcerogenic effects of non- steroidal anti- inflammatory drugs (NSAID). It has a mucosal protective effect on the GIT mucosa by inhibiting the secretion of acid and pepsin in stomach.[6] Therapeutic dose available for misoprostol is 200-800 microgram daily. The effect of misoprostol is dependent on the route of administration. At sublingual administration the tablet is allowed to melt under the tongue and has usually melted and disappeared after 10-20 minutes.[7,8] Sublingual administration of misoprostol has been shown to be more effective for cervical priming compared with oral administration.[7] Pharmacokinetic studies as well as studies on uterine contractility in pregnant women indicate that sublingual administration of misoprostol results in more rapid elevation of plasma levels compared with vaginal administration, a longer duration of elevated plasma concentration of the active misoprostol free acid compared with oral administration and development of uterine contractility similar to vaginal treatment[8,9] The aim of the present study was to evaluate the efficacy of misoprostol in cervical priming before gynaecological procedures in non-pregnant women, reduction in the time of procedure and its role in decreasing the need of anaesthesia/analgesia. So that it can be used on a routine basis in our hospital before all gynaecological procedures. In present study the result came out to be significant and comparable with various other studies.

METHODS

The study was conducted in the department of obstetrics and gynaecology at the AVBRH, Sawangi from July 2012 to June2014. The sample size was 200 non-pregnant premenopausal women. The study was randomized control trial followed a single bind style for two parallel groups. There were two groups, study group (n=100) and control group (n=100). The patients were recruited from the indoor as well as OPD requiring intrauterine procedure (viz D&C, hysteroscopy, HSG). All women considered were to be of good general health, over 18 years of age, willing to participate and to sign an informed consent, inclusion criteria (Participants in this study were non pregnant pre-menopausal nulli-parous or parous women admitted for gynaecological procedures requiring dilatation of cervix).

Patients were randomly allocated to either treatment with misoprostol (study group), or to folic acid that is, placebo (control group), by means of a computer-generated number table, and by using sealed opaque envelopes, numbered and used consecutively. Computerized randomization was done to assign the patient to a particular group. The randomization list was kept concealed from the investigator until the study completes. The women of misoprostol group received, 200 microgram of misoprostol sublingualy and the women of placebo group received l mg folic acid 2 hours prior to the intrauterine procedure. The patients were admitted one day before the procedure. A detailed history was taken and examination was done. All the routine investigations were sent. The study was conducted in a single-blinded fashion. The drug administered was unknown (blinded) to the investigating doctors and staff performing the procedure. Before administration of the drug, cervical dilatation was recorded. After the administration of the drug, the degree of dilatation was determined by whether or not Hegar's dilator with a diameter of 4 mm or smaller can be passed through the internal cervical os without resistance. The resistance of the internal cervical os experienced by the investigator was classified as 'easy', 'moderate' or 'difficult'. Time required for the cervical dilatation was recorded. It was also noted how difficult the insertion had been, from the patients point of view. The general experience of the insertion was estimated by the patient as very 'unpleasant', 'unpleasant' or 'very little unpleasant'. Anaesthesia was given to women who require dilatation of cervix beyond 4 mm (hysteroscopy) and patients who complain pain. Side effects such as nausea, diarrhoea, skin rash, fever/shivering, bradycardia or syncope was recorded. In addition, women were asked to keep daily records of pain, bleeding and any side effects experienced until follow-up.

RESULTS

This case control study was conducted in the department of obstetrics & gynaecology, Acharya Vinoba Bhave rural hospital, Sawangi (M), Wardha.

A total of 200 non pregnant women, fulfilling inclusion criteria were included in the present study. The eligible women were then randomized into two groups: case and control. In each group 100 women were considered.

Study group: Received 200 micro gram of sublingual misoprostol.

Control group: Received 1 milligram of folic acid.

Table 1: Showing mean age in study and control group.

Age group	Mean ± SD	S.E. of mean	T statistic	P value
Study group	38.20 ± 7.23	0.72	1.203	0.230
Control group	39.40 ± 6.86	0.68		

In the present study it was found that mean age was 38.20 ± 7.23 in study group which was probably equal in control group 39.40 ± 6.86. It was statistically not significant by using students't' test as p value >0.05.

Table 2: Showing distribution of cervical resistance experienced by investigator in study and control group.

Cervical resistance	Study group		Control group	
	No.	%	No.	%
Easy	75	75.00%	0	0.00%
Moderate	20	20.00%	30	30.00%
Difficult	5	5.00%	70	70.00%
Total	100	100.00%	100	100.00%

Chi square = 133.33 P value = 0.001 <0.05 Significant

Table 3: Showing distribution of cervical dilatation required in study and control group.

Cervical dilatation required	Study group		Control group	
	No.	%	No.	%
Yes	25	25.00%	100	100.00%
No	75	75.00%	0	0.00%
Total	100	100.00%	100	100.00%

Chi square = 116.821 P value = 0.001 <0.05 Significant

Table 4: Showing mean time required for cervical dilatation in study and control group.

Time required for cervical dilatation	Mean ± SD	S.E. of mean	T statistic	P value
Study group	36.00 ± 11.19	1.11	29.396	0.001
Control group	75.50 ± 7.43	0.74		

In the present study it was found that mean time required for cervical dilatation was 36.00 ± 11.19 in study group which was less than control group 75.50 ± 7.43. It was statistically significant by using 't' test as p value <0.05.

Table 5: Showing mean score of post drug cervical dilatation in study and control group.

Post drug cervical dilatation	Mean ± SD	S.E. of mean	T statistic	P value
Study group	4.08 ± 0.88	0.08	21.620	0.001
Control group	2.08 ± 0.27	0.02		

In present study it was found that mean post drug cervical dilatation was 4.08 ± 0.88 in study group which was more than control group 2.08 ± 0.27. It was statistically significant by using student't' test as p value <0.05.

Table 6: Showing general experience of patients in study and control group.

General experience of patient	Study group		Control group	
	No.	%	No.	%
Unpleasant	20	20.00%	30	30.00%
Very little unpleasant	75	75.00%	0	0.00%
Very unpleasant	5	5.00%	70	70.00%
Total	100	100.00%	100	100.00%

Chi square = 133.33 P value = 0.001 <0.05 Significant

Table 7: Showing distribution of study and control group according to anaesthesia had given.

Anaesthesia given or not	Study group		Control group	
	No.	%	No.	%
Yes	25	25.00%	100	100.00%
No	75	75.00%	0	0.00%
Total	100	100.00%	100	100.00%

Chi square = 116.821 P value = 0.001 <0.05 Significant

Table 8: Showing distribution of side effects of the drug administered in study and control group.

Variables	Study group		Control group		P value
	Yes	No	Yes	No	
Fever	2	98	2	98	0.614
Diarrhoea	1	99	0	100	0.990
Bleeding	15	85	5	95	0.034
Shivering	0	100	0	100	-
Pelvic pain	10	90	5	95	0.283
Uterine cramp	10	90	5	95	0.283
Vaginal discharge	2	98	2	98	0.614
Fever	2	98	2	98	0.614

In present study it was found that side effects regarding bleeding after post drug cervical dilatation in study group were statistically different as compared to control group.

Table 9: Showing distribution of complications occurred during procedure in study & control group.

Variables	Study group		Control group	
	Yes	No	Yes	No
Uterine perforation	0	100	0	100
Cervical tear	0	100	0	100
False passage	0	100	0	100

In present study no complications like uterine perforation, cervical tear and false passage were found in study group and control group.

DISCUSSION

In the present study, total 200 Non pregnant women, fulfilling the inclusion criteria was included. The eligible women were then randomized into two group case and control. In each group 100 women were considered. The women of misoprostol group received, 200 microgram of misoprostol sublingualy and the women of placebo group received l mg folic acid 2 hours prior to the intrauterine procedure.

The present study was comparable with Shyama Prasad Saha,[10] S Bansal,[11] Anita Kant,[12] Suk Wai Ngai[13] as shown in Table 10.

Shyama Prasad Saha[10] studied that mean cervical width in the study group was significantly higher than control group (4.6 ± 0.8 mm vs. 3.8 ± 0.7 mm, P <0.0001). 141 (61.57%) cases required further cervical dilatation in the study group compared to 206 (89.18%) in the control group (P <0.0001). Time taken for further cervical dilatation was significantly lower in the study group compared to control group (48.3 ± 18.4 sec vs. 68.6 ± 17.3 sec, P <0.0001). Cervical injury and uterine perforation occurred in 12 and 3 women respectively in the control group compared to 1 and 0 women respectively in the misoprostol group. Two most common side effects of vaginal misoprostol were mild lower abdominal pain (21%) and slight vaginal bleeding (09.2%) which were within tolerable limit as shown in Table 10.

S Bansal[11] studied that in premenopausal group the misoprostol treated women had significantly increased baseline cervical dilatation 6.2 vs. 4.2 mm in control group. Resistance to cervical dilatation was less in misoprostol group (13.3% vs. 33.3%). Patients in the placebo group had significantly (P <0.05) fewer adverse side effects than those in the misoprostol group. Out of 60 women 28 (46.6%) women had side effects but most of the side effects were minor and the procedure was acceptable to 79% women. The studies that evaluated misoprostol for cervical priming before diagnostic and operative hysteroscopy reported different results.

Anita Kant[12] study showed, significant difference between the study group (7.7 ± 1.7 mm) and the control group (4.5 ± 1.8 mm) in terms of mean cervical width, number of women requiring additional dilatation (7/25 versus 22/25), and also the time required for dilatation (4.7 ± 8 seconds versus 20.6 ± 9.3 seconds). Their study showed minor side effects

Suk Wai Ngai[13] studied that Pretreatment with misoprostol significantly reduced the amount of force required to dilate the cervix to 8 mm (40.0 versus 103.7 N, P <0.001). The mean baseline cervical dilatation was significantly greater in the misoprostol group (6.0 versus 3.3 mm, P <0.001). The mean duration of the operation was similar in the two groups. There were no immediate intraoperative complications as shown in Table 10.

Table 10: Comparison of different studies with present study.

Variables	Shyama Prasad Saha	S. Bansal	Anita Kant	SukWai Ngai	Present study
Mean postdrug cervical dilatation	4.6 ± 0.8 mm vs. 3.8 ± 0.7 mm, P <0.0001	6.2 vs. 4.2 mm in control group	7.7 ± 1.7 mm study group 4.5 ± 1.8 mm control group	6.0 versus 3.3 mm, P <0.001	4.08 ± 0.88 vs. 2.08 ± 0.27
Cervical resistance	-	13.3% vs. 33.3% Less in misoprost group (P <0.05)	-	Force required to dilate the cervix 40.0 vs. 103.7 N, P <0.001	Difficult 25% vs. 100% in control group
Cervical dilatation required	141 (61.57%) cases in study group 206 (89.18%) in control group P <0.001	-	7/25 versus 22/25 in control group	-	25% in misoprostol group as compared to 100% in control group
Time required for cervical dilatation	48.3 ± 18.4 sec vs. 68.6 ± 17.3 sec, P <0.0001	–	4.7 ± 8 seconds versus 20.6 ± 9.3 seconds	Almost similar in both the groups	36.00 ± 11.19 vs. 75.50 ± 7.43
Pain experienced/ general experience of the patient	-	-	-	-	25% unpleasant in study group, 75% very unpleasant in control group
Anaesthesia given/not	-	-	-	-	25% in misoprostol group as compared to 100% in control group
Side effects / complications	Mild abdominal pain (21%), slight vaginal bleeding (09.2%) Cervical injury and uterine perforation	(46.6%) women had side effects (minor). acceptability 79%	Minor side effects	No immediate intraoperative complications	40% in study group and 18% in control group. No complications

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