MANAGEMENT OF FIRST TRIMESTER MISCARRIAGE BY 800-µG VAGINAL MISOPROSTOL COMPARED WITH EXPECTANT MANAGEMENT

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ABSTRACT

Objective: To compare the safety and effectiveness of expectant management with medical management by misoprostol in cases of first trimester miscarriage.

Methodology: This case-control study was conducted in the Department of Obstetrics and Gynecology, Liaquat University Hospital, Hyderabad (Sindh) Pakistan, from December 2010 to November 2012 (two years). From 124 women, 62 were managed by up to two doses of 800-µg misoprostol intra-vaginally and 62 expectantly. If products of conception were not completely expelled till 7th day then manual vacuum aspiration or dilatation and curettage was performed. Reports of complications were sought up to 8 weeks.

Results: There was 83.87% success rate in misoprostol group and 48.39% in expectant management group (P<0.001). No statistically significant difference in side-effects or complications was observed. Patient satisfaction rate was significantly higher in misoprostol group (P<0.01).

Conclusion: Vaginal misoprostol is almost as safe as expectant management as well as significantly more efficient and satisfactory for the management of first trimester miscarriages.

Key Words: First trimester miscarriage, Misoprostol, Expectant management

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INTRODUCTION

Every year 15-20% clinically recognized pregnancies fail at early stages worldwide and 10-13% women die due to complications of miscarriage[1]. Approximately 890,000 women have missed or incomplete abortion[2]. Expectant management of early pregnancy failure has been practiced since 1995 but with a controversy due to a wide range of results (25-76%) and low patient acceptability due to anxiety and uncertain amount of time till expulsion[3]. However, the last decade has presented misoprostol as another alternate that is claimed to be more safe, efficient and acceptable method for the management of early pregnancy failure. Though this method is gaining popularity around the globe, its efficacy has been reported with the variation of 65% to 99%[4,5]. Also the patient acceptability rate was higher for this treatment regimen[6,7].

Misoprostol has been long in use in our country, mostly for cervical priming purpose. But the studies regarding its use as an abortificant in our population are scarce. Therefore this study was designed to determine a method for the management of first trimester miscarriage that is safer and more efficient for our resource-poor population.

The objective of this study was to compare the safety and effectiveness of expectant management with medical management by misoprostol in cases of first trimester miscarriage in terms of complications and success rate.

METHODOLOGY

After the ERC (ethical review committee) approval the subjects for this study were recruited at Obstetrics and Gynecology OPD of Liaquat University Hospital, Hyderabad (Sindh) Pakistan, between December 2010 and November 2012.

All women presenting with less than 13-weeks' gestation were considered eligible to include in this study if they were having incomplete miscarriage, early fetal demise or embryonic demise. Women who presented with severe hemorrhage, severe pain, pyrexia, severe asthma, known hemolytic disease, known coagulopathy or on anticoagulants and known hypertensives were excluded from the study. A well informed consent was ob-

tained from all women who were included in this study. The sample size was estimated by taking success rate of expectant management 65% and success rate of misoprostol regimen 90%, with 90% power of the study and 5% significant level, it came out as 116 subjects.

During the study period 124 out of 143 eligible women consented for the study and were allocated to either misoprostol group or expectant group by non-probability purposive sampling technique.

Subjects in misoprostol group were administered 800-µg (4x200-µg tablets) of misoprostol, inserted into posterior fornix without any type of soaking by a resident or a staff nurse in the Obstetrics and Gynecology OPD of Liaquat University Hospital, Hyderabad. Women who resided within Hyderabad city and did not feel inconvenience in approaching to the hospital were allowed to go home with advice for follow-up visit on 3rd day, while others were admitted to the hospital. Women who did not completely expelled the products of conception on third day were administered a second dose of 800-µg misoprostol with the advice of follow-up on 7th day. If the conceptual products were still not completely expelled the medical management was considered unsuccessful and manual vacuum aspiration (MVA) or dilatation and curettage (D&C) was performed, after which subjects were discharged with advice of follow-up on 15th day.

Subjects in expectant group were allowed home without any intervention with an advice for follow-up visit on 7th day, till then if the products of conception were not completely expelled the expectant management was considered unsuccessful and they underwent MVA or D&C and were discharged with the advice of follow-up on 15th day.

All women of both groups underwent transvaginal ultrasonography, general physical examination and transvaginal examination by senior resident or consultant gynecologist for any complication like bleeding, pain and infection. The diagnosis of retained products of conception was made when uterine cavity presented with area of mixed echogenicity. Such cases underwent surgical curettage by consultant gynecologist.

A predesigned proforma was used to record all data. The effectiveness of method was accounted if products of conception were completely expelled by 7th day without need of surgical intervention. A safety of the procedures was compared by complications (infection, emergency visit within 15 days or continuous bleeding for eight weeks). Other complaints were also recorded like severe abdominal pain, nausea, vomiting, headache and dizziness.

Data were analyzed by using MS-Excel and SPSS v.16. Chi-square test was used to compare categorical data and student's t-test was used for continuous data.

RESULTS

Total 124 women were included in this study with 62 in misoprostol group and 62 in expectant group. Baseline characteristics of these groups are detailed in table 1. By the 7th day 52 (83.87%) subjects in misoprostol group expelled products of conception completely whereas in expectant management group 30 (48.39%) subjects expelled products (Table 2).

There was no statistically significant difference in side effects between the two groups (Table 3). Forty-nine (79.03%) women in misoprostol group expressed satisfaction towards the treatment whereas only 21 (33.87%) women in expectant management group showed satisfaction towards the treatment ($P < 0.01$).

DISCUSSION

Among various available techniques for management of miscarriage and induced termination of pregnancy, medical management has gained popularity in modern world during last decade, especially after introduction of misoprostol. A variety of results has been reported with a broad range of success i.e. from 13% to 99%[8], which may be due to different factors like selection of cases, amount and number of doses, rout of administration and use (alone or in combination with mifepristone), as there has been no single standard protocol defined.

In the present study efficacy and safety of 800-µg vaginal misoprostol was compared with expectant management for first trimester pregnancy failure. After the exclusive search, we found very few local studies that compare medical management of miscarriage by misoprostol with other methods, and this was the first study that made comparison with expectant management. Also we included three types of earl pregnancy failure (incomplete miscarriage, early fetal demise, and embryonic demise), whereas most of the studies include only single type of miscarriage[9,10] and a few have included two types[11], whereas some researchers have used misoprostol for pre-abortion cervical priming[12-14].

It was demonstrated by the present study that the medical management was far more efficient than the expectant management of first trimester pregnancy failure and more or less as safe. The success rate of medical management in this study was 83.87% and of expectant management was 48.39%, which means that up to 68.75% surgical procedures could be saved by medical management. Bagratee et al[6] documented similar results in their study. They reported overall 88.5% success rate in medical management group and 44.2% success rate in expectant management group. On the other hand Nielsen et al[15] reported 82% success rate for med-

ical management and 76% success rate in expectant management group. However, they administered 400-µg oral mifepristone orally followed by a single dose of 400-µg oral misoprostol after 48-hours. Also, they concluded the outcome on 5th day. Trinder et al[16] administered 800-µg misoprostol intra-vaginally, as in our study, and reported 20% failure rate in medical management group and 36% in expectant management group. On the other hand some studies have reported even significantly higher success rates for misoprostol management. Weeks et al[17] reported 96.3% success rate whereas Shwekerela et al[18] repored 99% success rates for misoprostol management. Unlike the present study, in both of these studies misoprostol was administered as 600-µg orally and only incomplete abortions were subjected. Misoprostol is often associated with gastrointestinal side-effects. In our study there was no statistically significant difference in side-effects or complications between the two groups. Similar observations have been reported by other similar studies[6,15,16]. In our study among women who were management by misoprostol the most frequently reported side effect was abdominal pain present in 43.55%, that was similar to reported by Khan[8] and close to that is reported by Behrashi[19]. In our study the misoprostol group presented nausea in 37.10%, diarrhea in 22.58% and vomiting in 17.74%, which is similar to those reported by Bagratee et al[6]. In our study rate of infection was 3.23% which was comparable to that is reported by Khan[8] and Trinder et al[16], and continuous bleeding was in 4.84% which was similar to that is reported by Behrashi[19]. In our study 79% women were satisfied with misoprostol management compared to 33.87% with expectant management. The higher satisfaction rate of women with misoprostol management is also reported by Bagratee et al[6] (89%), Jalil et al[11] (97%) and Shwekerela et al[18] (75%).

Table 1: Baseline characteristics (n=124)

	Misoprostol Group (n=62)	Expectant Group (n=62)
Age (years) mean±SD	28.4±6.56	27.78±8.52
Gestational Age (days) mean±SD	66.78±11.06	73.78±9.52
Nulliparous, n (%)	22 (35.48)	20 (32.26)
Previous Miscarriage, n (%)	13 (20.97)	15 (24.19)
Vaginal Bleeding, n (%)	42 (67.74)	46 (74.19)
Hemoglobin (g/dL) mean±SD	10.2±1.2	9.8±1.3
Early Fetal Demise, n (%)	49 (79.03)	45 (72.58)
Embryonic Demise, n (%)	8 (12.90)	9 (14.52)
Incomplete Miscarriage, n (%)	5 (8.07)	8 (12.90)

Table 2: Treatment outcome (n=124)

Outcome	Misoprostol Group (n=62)	Expectant Group (n=62)	p value
Successful	52 (83.87%)	30 (48.39%)	<0.001
Failure	10 (16.13%)	32 (51.61%)	

Table 3: Secondary outcomes/side-effects (n=124)

	Misoprostol Group (n=62)	Expectant Group (n=62)
Continuous bleeding	3 (4.84%)	5 (8.07%)
Nausea	23 (37.10%)	17 (27.42%)
Vomiting	11 (17.74%)	9 (14.52%)
Diarrhea	14 (22.58%)	16 (25.81%)
Pyrexia	2 (3.23%)	5 (8.07%)
Pain	27 (43.55%)	34 (54.84%)

P-value was not significant throughout

CONCLUSION

Our study demonstrates that 800-µg vaginal misoprostol is almost as safe as expectant management as well as significantly more efficient and satisfactory for the management of first trimester miscarriages. With very low complication rates and tolerable side effects this method can be successfully and feasibly adopted in low-resource country like ours.

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CONTRIBUTORS

SD conceived the idea, planned the study, and drafted the manuscript. NA and SM helped acquisition of data. AH did statistical analysis and critically revised the manuscript. All authors contributed significantly to the submitted manuscript.