Original Article

Evaluation of Efficacy and Safety of Misoprostol in Medical Termination of Pregnancy Using International Federation of Gynaecology and Obstetrics (FIGO) Protocol

Fatima Nazim, Zartaj Hayat and Arifa Bari

ABSTRACT

Objective: To evaluate the efficacy and safety of misoprostol administration in medical termination of pregnancy using FIGO protocol

Study Design: Prospective descriptive study

Place and Duration of study: The study was conducted at the Department of Obstet & Gynae, Fauji Foundation Hospital, Rawalpindi from Jan.2016 to June.2017.

Materials and Methods: 73 patients were recruited in the study using non probability consecutive sampling technique. Patients with incomplete miscarriages, missed miscarriages up to 24 weeks and induced miscarriages due to fetal anomaly, anhydramnios, chorioamnionitis, intrauterine fetal demise and medical problems were included in the study. Patients fulfilling the selection criteria were admitted in the hospital. After detailed history and examination, baseline investigations and clotting profile were sent. Written informed consent was taken. Misoprostol administration was done according to the FIGO protocol. The efficacy was determined by successful expulsion of products of conception without surgical intervention. Safety profile was determined by occurrence of severe haemorrhage requiring blood transfusion, infection, retained placenta, uterine rupture.

Results: The mean age of study population was 38years +. 5years. 38% of the patients were between 36 to 40 years of age.73%of the patients were multiparous. 17.8% of the patients were with history of prior caesarean section. First trimester missed miscarriage was the most common indication of termination of pregnancy. . The overall success rate was found to be 97.59% with no adverse side effects.

Conclusion: FIGO protocol for Misoprostol administration is an effective and safe option for medical termination of pregnancy.

Key Words: Misoprostol, FIGO protocol, Medical Termination, Miscarriage.

Citation of articles: 1. Fatima Nazim 2. Zartaj Hayat 3. Arifa Bari. Evaluation of Efficacy and Safety of Misoprostol in Medical Termination of Pregnancy Using International Federation of Gynaecology and Obstetrics (FIGO) Protocol. Med Forum 2018;29(4):32-36.

INTRODUCTION

Early pregnancy loss is the commonest complication encountered by women in their reproductive life.[1] It accounts for 10-20% of the clinically recognized pregnancies.[2] In Pakistan, the annual rate of miscarriage is 2.9% in the second and fourth decade of woman's life, responsible for 10-12% of maternal mortalities.[3] Approximately 56 million cases of miscarriages are occurring worldwide annually, thus making it a global health issue demanding safety and efficacy of its management options.[4]

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Received: October, 2017; Accepted: January, 2018

The available options for termination of pregnancy include expectant, medical and surgical management.[5] Surgical termination of pregnancy carries a considerable risk to woman's life[6] so the use of Misoprostol ,PGE_1 analogue, has largely replaced other methods.[7]Although its primary indication was treatment and prevention of gastric ulcer, however, due to its strong uterotonic effect it is a viable option for medical termination of pregnancy, cervical priming before surgical procedures, labour induction, treatment and prophylaxsis of postpartum haemorrhage.[8] It can be administered orally, sublingually, vaginally and through rectal and buccal route.[9]

The side effects include nausea, vomiting, diarrhoea, fever and chills. Another concern with use of misoprostol is its association with uterine rupture especially in patients with previous uterine scar. However literature review revealed that it is rare in first trimester and the risk increases with increasing gestational age, the highest being in third trimester when it is used for induction of labour.[10] Cost effectiveness, easy availability and stability at room

temperature makes Misoprostol a useful option especially in low resource setting.[11] However the dosage protocol used for termination of pregnancy at different gestational ages vary according to the hospital settings.

This study aims at using Misoprostol administration protocol devised by International Federation Of Gynaecology and Obstetrics (FIGO) and World Health Organization (WHO) which is also endorsed by Society of Obstetrics and Gynaecology, Pakistan (SOGP) for medical termination of pregnancy in different types of miscarriages at various gestational ages and determining its efficacy and safety so that a uniform dosage protocol can be implemented.

MATERIALS AND METHODS

After approval from hospital ethical committee , this prospective descriptive study was conducted in the department of Obstet and Gynae, Unit 2, Fauji Foundation Hospital, Rawalpindi from Jan. 2016 to June 2017.A total number of 73 patients were recruited in the study using non probability consecutive sampling technique. Patients presenting with incomplete miscarriages, missed miscarriages upto 24 weeks and induced miscarriages due to fetal anomaly, anhydramnios, chorioamnionitis, intrauterine fetal demise and medical problems were included in the study. Patients with septic abortion, acute asthama, glaucoma and allergy to the prostaglandins were excluded from the study. Patients fulfilling the inclusion and exclusion criteria were admitted in the hospital. After detailed history and examination, baseline investigations and clotting profile were sent. A written informed consent was taken. Misoprostol administration was done according to the FIGO protocol as shown in table 1.

The dose of misoprostol was reduced to half in patients with prior caesarean section presenting in second trimester. The efficacy of misoprostol was determined by successful expulsion of products of conception without requiring surgical intervention. Safety profile was determined by occurrence of severe haemorrhage requiring blood transfusion, postabortal infection, retained placenta, uterine rupture. Results were recorded in proforma and analysed by SPSS 20 version.

RESULTS

A total number of 73 patients were included in the study. The mean age of study population was 38years +- 5years. Majority (38%) of the patients were between 36 to 40 years of age (table 2).

Seventy three per cent of the patients were multiparous (figure 1).

First trimester missed miscarriage was the most common indication of termination of pregnancy (table 2).

Out of total 73 patients, six were lost to follow up. The efficacy of Misoprstol was determined in 67 patients. The overall success rate was found to be 97.59% (table 3). Surgical evacuation due to failed medical TOP was done in two patients, both with missed miscarriage at 20-22weeks of gestation having history of previous two cesarean sections.

No cases of severe haemorrhage, post abortion infection, retained placenta or uterine rupture was reported.

Table No.I: Dosage protocol of misoprostol administration

Indications	Dose of Misoprostol
First Trimester	
Induced abortion	800mcg sublingually or vaginally 3hrly max. 3 doses within 12 hrs
Missed miscarriage	800mcg vaginally 3hrly max 2doses
Incomplete miscarriage	400mcg sublingual ly single dose
Second trimester	
Induced abortion	400mcg vaginally 3hrly max. 5 doses
Intrauterine fetal death	13-17weeks: 200mcg vaginally 6hrlymax .4 doses
	18-26weeks:100mcg vaginally6hrly max 4 doses

Table No.2: Age distribution of study population (n=73)

Age groups (Years)	No. of patients	Percentage
20-25	11	15.06%
26-30	17	23.28%
31-35	13	17.8%
36-40	28	38.35%
>40	04	5.4%

Table No.3: Indications for termination of pregnancy (n=73)

Indications	No. of patients	Percentage
First Trimester		
Incomplete miscarriage	11	15.06%
Missed miscarriage	27	36.98%
Induced miscarriage	01	1.36%
Second Trimester		
Missed miscarriage		
13-17weeks	14	19.17%
18-24weeks	06	8.21%
Induced miscarriage		
Fetal anomaly	05	6.84%
PPROM+Chorioamnionitis	03	4.10%
Choronic kidney disease	01	1.36%
IUD(26-30wks)	05	6.84%

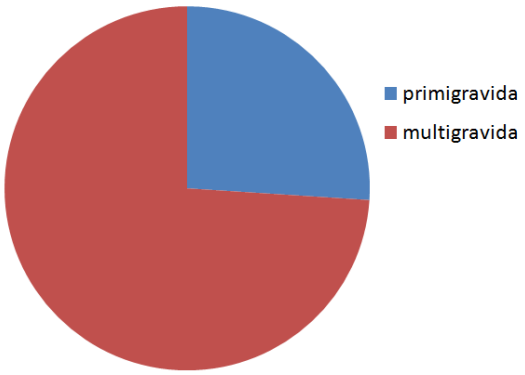

Figure No.1: Parity of study population (n=73)

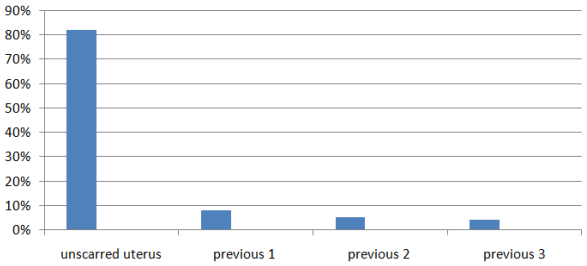

Figure No. 2: Percentage of Patients with Prior Caesarean Section (n=73)

Table No.4: Efficacy of misoprostol in medical termination of pregnancy (n=67)

	No. of patients	%age
Complete expulsion within one cycle	40	59.70%
Patients requiring repeat cycle of misoprostol after 24hrs rest	15	22.38%
Patients with spontaneous expulsion after 1 week rest	07	10.44%
Patients requiring repeat cycle of Misoprostol after 1week rest	3	4.4%
Patients requiring surgical evacuation after failed TOP	2	3.17%

DISCUSSION

Management options available for termination of pregnancy include expectant, medical and surgical treatments. Using Misoprostol for medical termination of pregnancy has been in clinical practice but the dosage protocol remained controversial. Different randomised controlled trials have been conducted in the past to determine which treatment option is better. Miscarriage treatment trial(MIST)[12] was conducted in 2006 by J Trinder et al comparing medical and expectant managements with surgical management of first trimester miscarriages and concluded that the incidence of gynaecological infection after surgical, medical and expectant management was low(2.3%) and did not depend upon the type of the method used. The optimum regimen for Misoprostol administration needs to be determined and future research in this regard is lacking. Dosage protocol of Misoprostol administration devised by FIGO and WHO, endorsed by Society of Gynaecology and Obstetrics Pakistan in 2003 was used in this study with an aim to determine its efficacy and safety.

The mean age of the study population was 38 ± 5 years. 38% of the patients were between 36-40 years of age. A study conducted by Anee Marie et al tried to find out the association between maternal age and risk of spontaneous miscarriage and concluded that the incidence of miscarriage increases with maternal age, highest being in late 30 years or more.[13]About 36.9% of medical terminations were done due to first trimester missed miscarriage and was the most common indication.53.4% of the patients had gestational age less than 13 weeks. Ammon Avalos L and colleagues studied the expected rates of miscarriage by gestational age and found out a cumulative risk of 11-22% for 5 to 20 weeks of gestation.[14] Our study results show a slightly raised percentage of patients presenting in first trimester.

The overall success rate of medical termination of pregnancy in our study was found to be 97.59%. Only 2 patients required surgical evacuation. Both patients had history of previous 2 cesarean sections and late second trimester miscarriages. The ultrasound showed formed foetuses having parameters of 14 to 16 weeks. On vaginal examination the cervix was anteriorly placed with retroverted uterus. During surgical evacuation the foetuses were removed piecemeal. Liaquat FN et al conducted a study on 54 patients to evaluate the efficacy of 50mcg of misoprostol repeated at 4hrs interval for termination of second trimester fetal demise and the success rate was found to be 96.3% within 48 hours comparable to our study.[15] Prachasilpchai and colleagues had reported a success rate of 89.5% within 48hrs in 94 patients admitted for second trimester termination of pregnancy using 400mcg vaginally every 12 hrs.[16] Nielsen S et al conducted a randomised controlled trial to compare the efficacy of mifepristone (antiprogesterone) in combination with misoprostol and expectant management. He concluded that 82% of the patients had complete expulsion of products of conception within five days in medically treated group as compared to 76% of the patients who had received expectant management.[17] In our study 39 patients received medical termination due to first trimester missed, incomplete and induced miscarriages. Six patients were lost to follow up. Out of 33 patients, 63% had expulsion within 24 hours and 30.3% had complete

expulsion within seven days, making an overall success rate of 93.3% which is comparable to the study results mentioned. However mifepristone was not used due its non-availability in Pakistan.

Different routes of administration of misoprostol have been compared in various studies including oral, vaginal and sublingual routes. Shah N and colleagues compared the effectiveness of vaginal and sublingual misoprostol for termination of missed miscarriage with gestational age less than 20wks. They found no statistically significant difference in the rates of expulsion between the two routes.[18] Another randomised controlled trial was conducted by Hemleta and colleagues to compare oral versus vaginal route of misoprostol administration for termination of pregnancy between 12-26 weeks of gestation. The success rate for oral route was 94% as compared to 86.8% with vaginal route.[19] However, oral route was associated with unpleasant taste. We only used vaginal route of administration in all our patients to avoid gastrointestinal side effects.

The role of misoprostol in patients with prior uterine scar was a much debatable issue in the past. However literature review has shown that misoprostol can be administered safely in these patient in first and second trimesters. Since it is rare in first trimester, so in FIGO protocol the dose of misoprostol is same for scarred and unscarred uterus. However in second trimester the dose is reduced to half in patients with prior caesarean sections. In our study, out of 73 patients, there were 13 patients with scarred uterus and no case of uterine rupture was reported. J E Dickinson studied 720 patients who underwent termination of pregnancy due to fetal anomaly having previous one or more caesarean sections with misoprostol 400mcg repeated at 6hourly interval and no case of uterine rupture was reported.[20] Daskalakis and colleagues evaluated the safety of misoprostol in 108 patients between 17-24 weeks of gestation with history of previous caesarean delivery. They found it safe and efficacious drug and no case of uterine rupture was reported.[21] Mazouni C et al studied the role of misoprostol in medical termination of pregnancy in 250 patients, out of which 50 patients were with scarred uterus and reported only one case of uterine rupture presenting in late second trimester.[22] The use of misoprostol in third trimester requires maternal surveillance due to increased risk of uterine rupture in scarred uterus.

The limitation of this study is its small sample size. For generalization of our results more studies with larger sample size should be conducted in future. The FIGO has revised the recommended regimens for misoprostol only in 2017 for medical termination of pregnancy. The future recommendations include implementation of this revised protocol in our hospital setting and soon we will come up with the results.

CONCLUSION

Misoprostol is a safe and effective drug for medical termination in first and second trimesters. The success rate is quite high using FIGO protocol for misoprostol administration and should be implemented.

Author's Contribution:

Concept & Design of Study:	Fatima Nazim
Drafting:	Zartaj Hayat
Data Analysis:	Arifa Bari
Revisiting Critically:	Fatim a Nazim, Zartaj Hayat
Final Approval of version:	Fatima Nazim

Conflict of Interest: The study has no conflict of interest to declare by any author.

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