Medical Termination of First Trimester Miscarriages

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Objective: To study the success rate of medical termination of first trimester non viable pregnancies with misoprostol 1200µg.The secondary end points were to study the prevalence of unwanted side effects.

Study design: Interventional: Quasi experimental study.

Setting: Department of Obstetrics & Gynaecology. Fatima Memorial Hospital Lahore.

Study duration: 18 months (July 05 to January 07).

Sample technique: Non-probable sampling: Purposive.

Sample: Eighty one women seeking medical attention for early miscarriages.

Method: Women with non viable, first trimester miscarriage were selected for termination with misoprostol 1200µg in divided doses over 24 hours.

Main outcome measures: Main outcome measure was the proportion of successful resolution of miscarriage without surgical intervention. Secondary outcomes were incidence of pain, heavy vaginal bleeding (>500ml), infection, pyrexia and gastrointestinal side effects.

Results: Eighty-one women were recruited in the study. Treatment was successful in 43 patients (53.1%) with 38 patients (46.9%) requiring surgical evacuation due to failure of treatment. Major side effect experienced by patient was pain (42.0%) requiring analgesia for relief. Nausea and vomiting was seen in (18.5%). Two patients (2.5%) had diarrhea and three patients (3.7%) had pyrexia. Five patients (6.2%) had heavy vaginal bleeding (>500ml). None had PID.

Conclusion: Medical treatment of first trimester miscarriage is non-invasive and cost effective method of treatment and a safe alternative to D&C. Our study demonstrated the efficiency and safety of administration of 1200µg of misoprostol orally for management of missed, incomplete and an embryonic miscarriage.

Keywords: Misoprostol, medical management, miscarriage.

Spontaneous miscarriage is the most common complication of pregnancy and its incidence varies between 10 - 20% in clinically recognized pregnancies[3]. Surgical evacuation is usually the standard practice for the management of miscarriages in many parts of the world. Up to 80,000 uterine curettage procedures were carried out every year in United Kingdom[3] before medical termination was used. Studies are ongoing to determine the reduction in surgical evacuations with use of medical termination.

Expectant and medical management are recent alternative methods being used and investigated for management of first trimester miscarriages. The time required for complete miscarriage to occur is variable in expectant management[3]. It was reported that only 40% of women accepted expectant management due to uncertainty in predicting the success (20-80%) of expectant management[3] Whereas the acceptability of medical management is good. Misoprostol is the prostaglandin of choice as it is cheap and stable at room temperature .Different doses of oral or vaginal misoprostol, in single or repeated doses, with or without pretreatment with mifepristone (ante progesterone), gemeprost (prostaglandin E1 analogue) or methotrexate have all been used[5-7].However,the ideal dose and route of misoprostol has as yet not been established.

The different complications and side effects with medical management are the need for readmission, pelvic infection, heavy vaginal bleeding (> 500 ml), need for analgesia, diarrhoea, nausea, vomiting, pyrexia and postural hypotension[8].

The primary aim was to study the success rate of medical termination of first trimester non viable pregnancies with misoprostol 1200µg. The secondary end points were to study the prevalence of unwanted side effects.

Materials and Methods

This prospective study was conducted at Obstetrics and Gynaecology Department, Fatima Memorial Hospital, Lahore, from Jul 05 – Jan 07. Eighty one women with diagnosis of first trimester missed/an embryonic/incomplete miscarriage of less then 12 weeks gestation who fulfilled the inclusion criteria of being haemodynamically stable with hemoglobin > 9.0 g/dl and no sign of genital tract infection were recruited. Patient who did not give consent, had any contra indication to use of misoprostol (asthma, allergy) or with inevitable miscarriage were excluded from the study.

All patients underwent a gynaecological examination and vaginal ultrasound to confirm the following diagnosis;

1) Intrauterine gestational sac with mean sac diameter of greater than or equal to 2cm without fetal pole (an embryonic pregnancy).
2) Presence of fetal pole with no cardiac activity with CRL <6mm (missed miscarriage).
3) Gestational sac of less than 2cm with no interval growth or persistent absence if fetal cardiac pulsation on rescanning 7 to 10 days later (missed miscarriage).
4) Incomplete miscarriage/ RPOCs.

All patients were given misoprostol 1200 micrograms orally in divided doses over a period of 24 hours. A stat dose of 400 micrograms stat dose was given followed by 200 micrograms every 4 hours (4 doses).Up to a maximum of 1200 micrograms total dose. Compliance was ensured.

The women were informed about expected pain and bleeding associated with miscarriage. Buepron and Phenergan were used as analgesia. Anti D immunoglobulin was administered to all Rh negative patients. If patient had heavy vaginal bleeding (>500ml) D&C was then performed.

A repeat vaginal ultrasound was performed eight hours after the last dose or after onset of vaginal bleeding. An empty uterine cavity with endometrial thickness < 13 mm was considered as successful group. If POC's were present or endometrial thickness was > 13 mm a D & C was performed.

Data was collected on a pre-designed Performa. The number of successfully treated patients was recorded as well as the number of patients requiring D&C.

The total number of days of bleeding, gastrointestinal side effects, signs of genital infection, pyrexia, need for pain relief was obtained from Performa.

Genital tract infection was confirmed if three or more of the following criteria were observed within one month of initial consultation. The criteria were purulent vaginal discharge, elevated body temperature of more than 38 oC (100.4°F) for mo.

Results

A total eighty one women recruited in the study. Mean age was 25 years with mean gestational age of 9.5 weeks. Out of 81 women 45 (55.5%) were nulliparas and 17 (20.9%) had a previous miscarriage. Mean hemoglobin concentration was 10.2 g/dl in study population (table 1).All patients reported that they had taken the medication as instructed.

In the study population 67 patients (82.7%) had missed miscarriage. 9 patients (11.1%) had an embryonic pregnancy and 5 patients (6.2%) had incomplete miscarriage (Table 2).

Treatment was successful in 43 patients (53.1%) with 38 patients (46.9%) requiring surgical evacuation due to failure of treatment (table 3).

Major side effect experienced by patients was pain (42.0%) requiring analgesia for relief. Nausea and vomiting was seen in 18.5% requiring anti emetics. Two patients (2.5%) had diarrhea and three (3.7%) had pyrexia.

Table 1: Demographic characteristic of study population Values are given as mean [SD], n (%) or median (range) No of patient n = 81.

Demographic Characteristics	Value
Age (years)	25.01 [3.63]
Gestational Age (weeks)	9.55 [1.79]
Nulliparas	45 (55.5%)
Previous miscarriage	17 (20.9%)
Hemoglobin value	10.2 (1.38)

Table 2: Type of Miscarriages.

Miscarriage type	No. of Patients	Percentage
Missed	67	82.7
An embryonic	9	11.1
Incomplete	5	6.2
Total	81	100.0

Table 3: Effect of Treatment.

Result	No. of patients	Percentage
Successful	42	53.1
Unsuccessful	38	46.9
Total	81	100.0

Five patients (6.2%) out of 81 women had excessive vaginal bleeding (>500ml).None had PID (Table 4). The main reason for dissatisfaction was long waiting time for results.

Table 4: Side Effects.

Side Effect	No. of Patients	Percentage
Nausea and vomiting	15	18.5
Diarrhoea	2	2.5
Pain	34	42.0
Pyrexia	3	3.7
Vaginal bleeding (>500ml)	5	6.2
PID	0	0.0

Discussion

Medical management of miscarriage has become increasingly popular during the last decade widely practiced in U.K and USA. In the past, success rates of between 13%[8] and 96%[9] have been reported following medical treatment

of miscarriage. This large variation may be due to several factors including the patient selection, the concomitant use of mifepristone, the type of prostaglandin analogue, the dosage and route of administration. Some studies include only patients with missed miscarriage[10,11] or incomplete miscarriage[8], others included all types of early pregnancy failure.

In our study, patients with missed, an embryonic and incomplete miscarriages were included with a success rate of 53%.A randomized control trial (Chung et al,1999)[14] using oral misoprostol 400 μg every 4h up to a total dose of 1200ug demonstrated a reduction in number of surgical evacuations. In this study the successful rate of misoprostol treatment was 50.4% comparable to our study.

Nielsen et al (1999)[15] showed that the combination of mifepriston and or misoprostol was effective for first trimester spontaneous miscarriage. A total of 82% of women had an empty uterine cavity after 5 days of treatment. However, mifepristone is only available in a few countries. The addition of mifepristone also adds to the drug cost of regimen. We demonstrated that by using oral misoprostol alone successful rate was up to 53%in our study. Another study (Bagratee JS et al, 2003)[7] shows a success rate of 88.5% with vaginal use of misoprostol. They used 600ug misoprostol stat then repeated on day 2 (total dose 1200ug) vaginally.

Surgical evacuation has been the gold standard for the management of miscarriage for many years. It is quick & effective with success rate up to 98%[16]. Surgical evacuation is, however, an invasive procedure and require general anesthesia, associated with complications such as infection, hemorrhage, cervical and uterine injury and Asher man's syndrome other than risks of general anesthesia. The overall complication rate may be as high as 5.8%[16]. By use of medical management it is possible to decrease the rate of surgical intervention and its associated complications.

Although, drug related side effects like nausea (18.5%), diarrhea (2.5%) is seen in about one quarter of women, but they were only moderately troublesome. However, pain and bleeding were more severe in women treated with misoprostol as compare to D&C. In our study 42% women required analgesia for pain. Only 5 women (6.2%) required emergency curettage for heavy vaginal bleeding and 3 women (3.7%) suffered from fever.

In other studies[7,18,20] the gastrointestinal side effects are minimized by use of intra-vaginal route. However, these side effects are self limiting and most women found these regimens acceptable.[17,19]

The practical advantage of misoprostol is that it is an orally active prostaglandin analogue that is inexpensive, easy to administer, stable at room temperature[21] and can be administer as outpatient treatment without admission to hospital which will reduce the cost further[22]. However larger studies will need to confirm its safety for this purpose. The optimal regimen of medical management is yet to be determined.

Conclusion

Medical termination of first trimester miscarriage is non invasive and cost effective method of treatment and a safe alternative to D&C. Our study demonstrated the efficacy and safety of the administration of 1200ug of misoprostol orally for management of missed, incomplete and an embryonic miscarriage. The option of medical termination should be given to all patients as it significantly reduces the need of surgical intervention. It also decreases the risks of general anesthesia and all invasive procedures for the patient.

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