INDUCTION OF LATE ABORTION WITH VAGINAL MISOPROSTOL: EXPERIENCE FROM NIGERIA

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ABSTRACT

Objective: *To evaluate the outcome of induction of late abortion with vaginal misoprostol.*

Material and Methods: *This prospective study of misoprostol induced late abortion at gestational age of 13-27 weeks was conducted in 3 Lagos hospitals. Following a decision to induce, 200mcg of Misoprostol was inserted into the posterior fornix and repeated 12 hourly until expulsion of the fetus. Statistical analysis was performed using SPSS for windows version 7.0.*

Results: *Out of 102 patients, induction of late abortion was done mainly for fetal abnormalities (n=40, 39.2%) and intrauterine death (n=35, 34.3%). The age of the women ranged from 21 to 39 years. The modal gestational age was 15 weeks with a range of 13 to 27 weeks. Majority of the patients were multiparae (65.7%). The dose required to achieve expulsion ranged from 200 to 1000mcg with a mean of 364.7±102.4mcg.The mean induction expulsion interval (IEI) was 16±4 hours and 78.4% (80/102) expelled within 24 hours. The multiparous patients and cases of fetal deaths were associated with significantly shorter IEI. Gestational age more than 23 weeks was associated with fewer retained product rate Linear logistic regression analysis shows that multiparity ($p<0.01$), advanced gestation age ($p=0.00$) and fetal status ($p<0.01$) had independent association with IEI. Complete abortion rate was independently associated with gestational age ($p<0.001$) but not with parity and fetal status.*

Conclusion: *Vaginal misoprostol alone is a safe and effective method of late abortion termination in areas were mifepristone is not available.*

Key Words: *Misoprostol, Late Abortion, Miscarriage, Retained Products of Conception.*

INTRODUCTION

A number of situations give rise to the need for abortion services late in pregnancy.[1,2] This may be due to the woman's lack of knowledge about conditions under which abortion is permitted, lack of information about or access to health care services, financial constraints, inability to recognise signs of pregnancy, irregular periods, initial ambivalence about having an abortion, health concerns that arise after the first trimester, and family conflicts or change in life circumstances that makes a previously wanted pregnancy no longer feasible.[1-3]

While different methods have been used for induction of late abortion, the preferred and recommended method is mifepristone followed by repeated doses of a prostaglandins.[2,4,5] However, because of ethical difficulties of marketing, mifepristone is not available in most countries including Nigeria.[2] For this reason misoprostol alone remains one of the common methods for pregnancy termination.[2,6-8] Unlike other prostaglandins, misoprostol availability, cost effectiveness and stability in differing environmental condition have led to its acceptance by physicians.[2,8,9]

In this report we present our experience with vaginal misoprostol termination of second and early third trimester pregnancy.

MATERIAL AND METHODS

This study was conducted in three multidisciplinary proprietary hospitals in Lagos, Nigeria over a period of five and half years (July

SOCIODEMOGRAPHIC CHARACTERISTICS OF THE WOMEN THAT HAD INDUCTION OF LATE ABORTION

Characteristics	Number of patients (%)
Age(years)	.
20 - 24	17(16.7)
25 - 27	43(42.1)
30 - 34	27(26.5)
≥ 35	15(14.7)
Parity	
0	37(36.3)
1 - 4	61(59.8)
≥ 5	6(5.9)
Booking status	
Booked	48(47.1)
Unbooked	54(52.9)
Gestational age at induction(weeks)	
13 - 17	57(55.9)
18 - 22	25(24.5)
23 - 27	20(19.6)

Table 1

2001 to December 2006). All the patients who had misoprostol induced termination of pregnancy before 28 weeks of gestation were included in the study. Approval was obtained from the hospitals ethical committee. An informed consent was obtained from every patient before commencement of induction. Excluded from misoprostol termination of pregnancy was a known contraindication to the use of prostaglandin or previous uterine incision.

Following a decision to induce an abortion medically, the patient was admitted into the lying in ward (if not on admission already) and 200mcg of misoprostol (Cytotec, Searle Pharmaceutical, Chicago IL, USA) was inserted after the women have emptied their bladder; the insertion was repeated after every 12 hours until expulsion of the fetus occurs. After insertion the patients were advised to remain in bed for at least 2 hours. A sanitary pad was applied to ensure that the inserted tablet did not fall off unnoticed. All the patients received prophylactic antibiotics for 5 days and had ultrasound examination before discharge to exclude retained product of conception. Oxytocin augmentation was used when clinically indicated.

Data was collected prospectively and included sociodemographic parameters, indication for termination of pregnancy, use of pain relief, induction expulsion interval, estimated blood loss, augmentation rate, adverse events and

INDICATION FOR PREGNANCY TERMINATION

Indication	Number of (%) (n = 102)
Major congenital malformation	40(39.2)
Intrauterine death	35(34.3)
SS fetal genotype	13(12.8)
Premature rupture of fetal membrane before viability	14(13.7)

Table 2

ADVERSE REACTIONS/SIDE EFFECTS RECORDED

Adverse reactions	Number of Women (%)
Nausea & vomiting	7(6.9)
Dizzy spells	2(1.9)
Temperature greater than 38°C	6(5.9)
Diarrhea	1(0.9)
Muscle cramps	1(0.9)
Headache	32.9)

NB: 13 patients reported side effect/adverse reactions with 8 subjects reporting more than one side effect/adverse reactions

Table 3

complication. Statistical analysis was performed using SPSS for windows version 7.0 (SPSS Inc, Chicago IL). Non parametric comparison between groups of continuous variables was done with Mann-Whitney U test. Categorical difference were analysed with Chi square test. Fischer exact test was used for outcomes with low frequencies. Logistic regression analysis was used to find variables with an independent effect on the outcome. P <0.05 was considered statistical significant.

Definition

Induction expulsion interval (IEI): The time elapsed between insertion of misoprostol tablet and the expulsion of the fetus.

RESULTS

During the period, 102 women had terminations of pregnancy at gestational ages of 13weeks to 27weeks with vaginal misoprostol in the three hospitals. Table 1 show the sociodemographic characteristic of the women. The age of the women ranged from 21 to 39years with a mean of 25.3 ± 3.4 years. The modal gestational age at termination was 15 weeks. Majority of the women were mulitpara (65.7%), with 36.3% being nulliparous. Forty eight (47.1%) patients were booked in either of the hospitals prior to the need to terminate the pregnancy. The remaining 54 (52.9%) patients were referred to us by the sickle

EFFECT OF SOCIODEMOGRAPHIC, OBSTETRIC AND FETAL FACTORS ON ABORTION INDUCTION EXPULSION INTERVAL (IEI) LESS THAN 24 HOURS

Parameters studied	IEI less 24 hours (%) (n = 80)	IEI greater 24 hours (%) (n = 22)	P value
Age (years)			
20-24	14(17.5)	3(13.7)	0.67
25-29	34(42.5)	9(40.9)	
30-34	22(27.5)	5(22.7)	
≥ 35	10(12.5)	5(22.7)	
Gestational age			
13-17	40(50.0)	17(77.2)	0.024
18-22	21(26.3)	4(18.2)	
23-27	19(23.7)	1(4.6)	
Parity			
Nulliparous	23(28.8)	14(63.6)	0.0004
Para 1	17(21.2)	7(31.8)	
≥ 2	40(50.0)	1(4.6)	
Fetal status			
Dead	33(41.3)	2(9.9)	0.011
Alive	47(58.8)	20(90.9)	
Booking status			
Booked	39(48.8)	9(40.9)	0.69
Unbooked	41(51.2)	13(59.1)	
Fetal membrane status			
Intact	76(95.0)	12(54.5)	0.0002
Ruptured	4(5)	10(45.5)	
Previous late abortion induction	13(16.0)	5(22.7)	0.53
Bleeding in the current pregnancy	21(26.3)	7(31.8)	0.80
Congenital anomaly	29(36.3)	11(50.0)	0.42

Table 4

cell club, Nigeria, general practitioners and self referral. The indication for pregnancy termination is shown in table 2. The dose of misoprostol required to achieve expulsion of the fetus ranged from 200mcg to 1000mcg with a mean of 364.7 SD 102.4. While 54 (52.9%) women required 200mcg, 26 (25.5%), 12 (11.8%), 6(5.9%), and 4(3.9%) women required 400, 600, 800 and 1000 mcg respectively.

The induction expulsion interval(IEI) varied from 6hour 15mins to 51 hours 23mins, with a mean of 16 hours 15mins (SD 4hours 12mins). All the patient expelled before the 60th hour from insertion of misoprostol. While eighty (78.4%) women expelled within 24 hours, 22 (21.6%) expelled after 24 hours with only 4 of these patient expelling after 48 hours. The estimated blood loss ranged from 200mls to 750mls, with a mean of 254.5 SD 45.2mls. Only 12 (11.8%) women had blood loss more than 500mls. None of these women required blood transfusion. Side effects were recorded in 13(12.7%) women (table 3). The most common reported side effects were nausea and vomiting seen in seven patients while pyrexia (temperature greater than 38°C) was seen in 6 patients.

The effect of sociodemographic, obstetric and fetal factors on the induction expulsion interval is shown in table 4. Gestational age above 18 weeks (P = 0.024), multiparity (p= 0.0004), dead fetus (P=0.011) and ruptured fetal membrane (P=0.0002) were found to be significantly associated with IEI less than 24 hours on bivariate analysis. Further detailed analysis also showed that the multiparous women had a shorter mean IEI than the nulliparae (10 hours 31 minutes ± 3hrs 35 mins Vs 17 hours 32 mins ± 7 hours 8 mins). The difference was also statistically significant (p <0.01). Spontaneous and complete expulsion of the fetus and placenta occurred in 66 (64.7%) women. In 23(22.5%) women the placenta were removed manually and the remaining 13(17.7%) women

LOGISTIC REGRESSION ANALYSIS OF FACTORS ASSOCIATED WITH INDUCTION EXPULSION INTERVAL LESS THAN 24 HOURS

Factors associated with short IEI	P value	Odd ratio	95% confidence interval
Dead fetal status	0.000	4.58	3.24 - 7.41
Multiparty	0.005	2.9	1.45 - 8.56
Gestational age greater than 18 weeks	0.007	2.56	1.96 - 7.59

Table 5

needed curettage for retained product of placenta. When comparison were made between cases in which the gestational ages were less than 23 weeks and those in which the GA were above 23 weeks in terms of completeness of the expulsion process; there was a statistically significant difference (R 0.18, CI: 0.03-0.86, X^2 = 4.8; p value= 0.028). There were 41.7% complete expulsion rate in gestational ages below 23 weeks as against 80% in cases above gestational age of 23 weeks. The IEI was also significantly (p=0.021) shorter when comparison was made using the status of the fetus. The IEI in cases with fetal demise was 12hrs 26mins± 4hrs 48mins compared to cases with live fetuses with IEI of 18hrs 29mins± 7hrs 19mins. Linear logistic regression analysis after controlling for confounding variables of age, parity, effect of fetal status, booking status and state of fetal membrane shows that only multiparity (OR: 2.9; CI: 1.45-8.56), gestational age greater or equal to 18weeks (OR: 2.56; CI: 1.96-7.59) and dead fetal status (OR: 4.58; CI: 3.24-7.41) had an independent association with induction expulsion interval,(less than 24 (table 5). Complete expulsion of the fetus and placenta was independently influenced by gestational age at termination of pregnancy (p = 0.0002) but not parity (p = 0.325) and fetal status (p = 0.17). Sixty one (59.8%) women required analgesia. In two women the process was augmented with oxytocin. They were the two women that required 1000mcg before expulsion. They were both at gestational age of 13 weeks.

DISCUSSION

The medical management of late abortions is centered on the use of prostaglandin compounds, either alone or in combination with mifepristone[2]; but because of ethical difficulties of marketing of mifepristone, misoprostol alone is the commonly available option.[2,7,8] Misoprostol has been shown by several reports to be safe, effective and affordable with minimal side effect.[10-12]

In this study we report our experience with the use of misoprostol alone in the induction of late abortion. It confirms the efficacy of misoprostol in inducing late abortion. Though its retained product rate is slightly more than that reported by Mendilcoioglu and colleagues from Turkey[11], it is comparable to the report of Dickinson and Evans from Australia.[10] A retain product rate of 35.3% in our study makes it inappropriate to be used alone as an outpatient abortifacient. A backup facility for evacuation of the uterus should be in place in centres using misoprostol alone as abortifacient for late abortions.

The overall abortion rate in this study was high with 96.1% of the women expelling within 48hours. This high success rate within a short time has been shown to be very critical; both in terms of patients desire to leave hospital early and the attendant hospital bill.[10] Short induction expulsion interval is even more critical in low resource setting like ours where relatively high hospital bills have been shown to be a major contributor to the unexpectedly high maternal morbidity and mortality.[13-15] Equally a significant finding in this study is the positive relationship between fetal status and induction expulsion interval. This finding is in agreement with the findings of previous researchers.[10,16,17] Therefore in pregnancy complicated with intrauterine death, lower doses should be used. This finding could explain the superiority of misoprostol and mifepristone combination over misoprostol alone. Dickinson and Evans in 2002 showed that in the presence of intrauterine death the dosage of misoprostol used have no significant impact on the induction expulsion interval.[10] In concordance with other studies, parity and gestational age were found to have a significant influence on the induction expulsion interval.[4,18] The longer induction expulsion interval in women of low parity is probably explained by the fact that most of them have not achieved vaginal delivery before. The effect of gestational age on induction expulsion interval may be due to the fact that most late pregnancy termination are due to intrauterine death rather than other indications.

In this study apart from nausea, vomiting and febrile morbidity, no other complication occurred. Based on the results of this study we conclude that vaginal misoprostol alone is a safe and effective method of late abortion induction in

areas were mifepristone is not available.

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