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Original Research Article

The use of misoprostol in outpatient treatment of abortions in the first quarter of pregnancy in Dakar

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ABSTRACT

Background: The objective of this study was to compare the effectiveness of misoprostol comparing to MVA in support of abortion from the first quarter.
Methods: This was a prospective, descriptive and analytical study (case-control study) made between January 1st and December 31st, 2015 in a level 1 maternity in Dakar.
Results: The study included316 first trimester abortions (158 were treated with misoprostol and 158 with MVA). The epidemiological profile was a woman aged on average 28.5 years and nulliparous (37%). The mean gestational age was 8 weeks 6 days. The rate of complete uterine evacuation was comparable in both groups (93% for misoprostol versus 94.3%for MVA) with a non-significant p-value. Side effects found (40.8%) were minor. The hospital stay averaged two hours in the misoprostol group against 24 hours for MVA. Anaemia was more common in the MVA group (44.1%) than in the misoprostol group (23.6%) (p = 0.0006). The cost of treatment with misoprostol (5620 CFA francs) was on average four times less than that of MVA (21,623 CFA francs).
Conclusions: Misoprostol can be seen as a credible alternative in the management of first quarter abortions because of its many advantages including its effectiveness, its easiness to be used in ambulatory, its low cost and safety.

Keywords: MVA, Miscarriages, Misoprostol

INTRODUCTION

Around the world, 15% of pregnancies end up with abortions.[1] In Senegal, abortions are responsible for 8% of maternal death.[2] Most of these abortions are managed with manual vacuum aspiration (MVA). It is a highly efficient method but it requires skilled health personnel, an appropriate and sterile equipment and anaesthesia.[3] Medical methods such misoprostol can also be used to manage abortion; they do not require many resources and can be administered by paramedical providers.[4] In Senegal, there is no consensus over the use of misoprostol as a means of managing early abortions. Our study was aimed at comparing the efficiency of misoprostol with that of the MVA for first trimester abortion management.

METHODS

This study was conducted in a level 1 Maternity in Dakar. It was a prospective, analytical and descriptive case-control study conducted from 1st January to 31st December 2015. It included all pregnant women which were subject to a first trimester abortion with a

gestational age of 13 weeks of amenorrhea or less (WA). It does not include pregnant women with more than 13 weeks of amenorrhea nor does it include cases of scarred uterus, molar pregnancies or illegally induced abortions. Patients were submitted to a treatment with a 600 µg dose of misoprostol administered through vaginal route or treated with manual vacuum aspiration. Patients were previously distributed between the two groups basing on drawing lots. The outcome was a complete uterine evacuation within 48 hours. We used the 20.0 version of the SPSS software to enter and analyze data.

RESULTS

Frequency

Over the study period, we identified 651 abortions among which there were 5582 cases of obstetrical admissions, an 11.7% frequency rate.

Among these cases, 316 (48.5%) fulfilled the inclusion criteria.

Table 1: Patients characteristics according to the treatment used in the management of first trimester abortions in a level one hospital in Dakar in 2015.

Variables studied	Misoprostol (n = 158)	MVA (n = 158)	p
Mean age	28 ans 9 mois (±1.44)	28 ans 6 mois (±6.33)	
Marital status			NS
Single	7 (4.4%)	1 (0.6%)	
Married	149 (94.3%)	156 (98.7%)	
Divorced	2 (1.3%)	1 (0.6%)	
Parity			NS
Nullipare	59 (37.3%)	58 (36.7%)	
Few previous deliveries	88 (55.7%)	88 (55.7%)	
Multipare	11 (7%)	12 (7.6%)	
Professional activity			0.003
Without	115 (72.8%)	136 (86.1%)	
With	43 (27.2%)	22 (13.9%)	
Geographic origin			NS
In the district	75 (47.47%)	69 (43.67%)	
Out of the district	83 (52.53%)	89 (56.33%)	

Table 2: Pregnancy characteristics according to the treatment used in the management of first trimester abortions in a level one hospital in Dakar in 2015.

Variables studied	Misoprostol (n=158)	MVA (n=158)	p
Mean age	28 years 9 months (±1.44)	28 years 6 months (±6.33)	
Antenatal care			NS
Done	10 (6.3%)	15 (9.5%)	
Not done	148	143	
Gestational age (weeks)			
< 6	9	11	NS
6-12	142	146	
12-13	7	1	

Patients features

Patients were aged 28 years and 9 months on average in the misoprostol group against 28 years and 9 months in the MVA group. As for their marital status, as well as the equality between them and their geographical origin, there was no substantial difference between the two groups (Table 1).

Characteristics of the current pregnancy

The majority of patients had not begun to receive their prenatal care yet. In the misoprostol group, only 10 patients (6.3%) had already received prenatal care, against 15 patients (9.5%) in the MVA group. The current phase of pregnancy progress at the moment of the abortion was comparable in the two groups with a mean gestational age of 8 WA and 6 days (Table 2).

Results of the treatment and length of the hospital stay

We recorded a 93% rate of successful abortions in the misoprostol group against a 94.3% rate in the MVA group. The length of hospital stay was equal in the two groups. The majority of patients stayed less than 12 hours at the maternity (99.4% within the misoprostol group against 94.9% within the MVA group) (Table 3).

Side effects, most commonly with uterine cramps and headache, were found in 40.8% of patients in the Misoprostol group. Anaemia was more frequent in the AMIU group (44.1%) than in the Misoprostol group

23.6% with a statistically significant difference (p = 0.0006) (Table 4).

Table 3: Treatment outcome and length of hospital stay by therapeutic method chosen in the management of first trimester abortions in a level one hospital in Dakar in 2015.

Variables studied	Misoprostol (n=158)	MVA (n=158)	p
Treatment outcome			
Success	147 (93%)	149 (94.3%)	NS
Failure	11 (7%)	9 (5.7%)	
Length of hospital stay			
<12	157 (99.4%)	150 (94.9%)	NS
12-24	-	2 (1.3 %)	
>24	1 (0.6%)	6 (3.8%)	

Side effects and complications

During the study, some side effects, mainly uterine cramps and headaches were noticed among 40.8% of the patients within the misoprostol group. Anemia was more common among the MVA group (44.1%) than in the misoprostol group (23.6%) with a statistically significant difference (p=0.0006) (Table 4).

Table 4: Haemoglobin rate according to the treatment used in the management of first trimester abortions in a level one hospital in Dakar in 2015.

Variables studied	Misoprostol	MVA	P
Haemoglobin level (g/dl)			
<7	-	6 (4.87%)	0.0006
7-11	30 (23.6%)	48 (39.2%)	
>11	97 (76.4%)	69 (56.09)	

Table 5: Cost of treatment depending on the chosen treatment method and the number of proceedings in the management of first trimester abortions in a level one hospital in Dakar in 2015.

Number of proceedings	Treatment cost (CFA francs)	
	MVA	**Misoprostol**
1 proceeding	21623	5620
2 proceedings	29123	6580

Cost of treatment

The cost of the misoprostol treatment amounted to 5,620 CFA francs. It included: 960 CFA francs spent in the purchasing of three misoprostol tablets, 1,537 CFA francs to pay for local antiseptics and 3123 CFA francs to buy uterotonic. Then, there was a second procedure which required three other misoprostol tablets thus raising the cost up to 6580 CFA francs. As for the MVA treatment which is four times higher than the misoprostol protocol, it amounted to 21623 CFA francs. This sum included the surgery itself (10,000 CFA francs), the medical equipment (7500 CFA francs), and antibiotics used during the post abortion phase (1000 CFA francs). A second procedure required the purchasing of new material raising the total cost up of MVA to 29,123 CFA francs (Table 5).

DISCUSSION

The epidemiological profile of this study was a young woman aged 28 and a half on average, nulliparous (37%) and married. We can find the same profile in previous studies conducted on abortion in Senegal. Indeed, Gueye, Faye and Cissé found a mean age of 28.5 in their respective studies.[5-7] All the patients we treated presented an amenorrhea of 13 weeks or less with a gestational age of 8 WA and 6 days. The same observation was made across the literature on this area where the majority of authors conducted studies on first trimester abortions.[8-10] One of the factors that explain this similarity is that, as the pregnancy progresses, the efficiency of misoprostol for abortion management decreases.[9]

The success rate was comparable in the two groups since it was 93% within the misoprostol group against 94.3% within the MVA group with a low p-value reflecting similarities in the two treatments in terms of efficiency. In many recent studies, the success rates amounted to 80%.[11] For example, Bagratee and Tang, using a 600 µg dose of misoprostol through vaginal route with the possibility to renew the doses within 7 days, respectively obtained success rates of 87% and 87.5%.[12,13] With a 800µg dose of moistened misoprostol administered through vaginal route and an which was to be renewed one week later if the abortion was not complete, Bughalo obtained a success rate of 87,1% after a single dose and 92% after two doses.[8] In his study, Jain used a 800 µg dose of moistened misoprostol administered through vaginal route and which was to be repeated each 24 hours up to three times if the abortion did not happen.[10]

In this study, the success rates amounted to 72%, 86% and 88% obtained respectively after one dose, two doses and three doses. As a result, we can assert that the protocol we resorted to for the treatment of first trimester abortion is as much efficient as those used by other authors in previous studies with similar or even higher doses. This observation consolidated our decision to use this method. Moreover, the availability of ultrasound scan, ideally performed within 48 hours, allowed us to improve the method's efficiency and to reduce the period of support. In previous studies, this period ranged from 7 to 10 days whereas, in the present study, it did not exceed 48 hours with a lower morbidity for the misoprostol group.[8-10] Indeed, anemia, which is the most common observed complications was more frequent within the MVA group (44.1%) than in the Misoprostol group (23.6%) with a statistically significant difference (p = 0.0006). There was severe anemia in 4.9% of the cases treated through MVA whereas none of the patients treated with Misoprostol presented a severe anemia.

However, this gap is probably due to bias in the selection process if we bear in mind that all the cases of serious abortions with abundant metrorrhagia and/or hemodynamic instability required an urgent uterine evacuation based on MVA.

Present study also dealt with the cost of first trimester abortions management. This cost is four times lower for the Misoprostol-based treatment (5620 CFA francs) than for the MVA treatment (21623 CFA francs), regardless to the number of procedures. In the study conducted by Gueye, the costs ranged from 2240 to 81900 CFA francs, with an average cost of 18470 CFA francs.[5] This lower cost, along with the other clinical benefits, constitutes a strong argument in favor of the use of Misoprostol for first trimester abortions management. Thus, Misoprostol is a credible alternative to MVA treatment in countries with limited resources such as ours, where the cost of the health care is mainly endorsed by patients themselves.

CONCLUSION

The use of Misoprostol in first semester abortions management has a similar efficiency compared to MVA: its lower cost, its good tolerance as well as the possibility to use it in the treatment of outpatient cases make it a reliable alternative for the treatment of incomplete first quarter abortions.

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