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CLINICAL ARTICLE

Progestin-based contraceptive on the same day as medical abortion

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ABSTRACT

Objective: To determine the success rate of medical abortion when a progestin-based contraceptive—either an etonogestrel implant or depot medroxyprogesterone acetate (DMPA) injection—is given on the same day as mifepristone for medical abortion. *Methods:* In a retrospective chart review, data were assessed for women aged 15–49 years who underwent medical abortion (≤63 days of pregnancy) at two hospitals in KwaZulu Natal, South Africa, between August 2013 and July 2014. The women were given oral mifepristone (200 mg) and buccal misoprostol (800 μg), and received an etonogestrel implant or DMPA injection on the same day as mifepristone. The primary outcome was the success rate of medical abortion. Comparative data were obtained through a PubMed search. *Results:* A total of 89 women were included. Complete termination was achieved in 87 (98%, 95% confidence interval 95%–100%) women. This success rate is similar to that reported in a previous systematic review of the rate of medical abortion success without progestin contraceptive administration (94.8%). *Conclusions:* Administration of a progestin-based contraceptive such as an etonogestrel implant or DMPA injection on the same day as mifepristone for medical abortion did not alter the success rates.

1. Introduction

In South Africa, the maternal mortality rate is estimated to be 300 per 100 000 live births [1]. Although this country boasts a health infrastructure that is superior to many other Sub-Saharan African countries, the maternal mortality rate has quadrupled in the past decade [2]. The Choice on Termination of Pregnancy Act of 1996 legalized induced abortion for fetuses of up to 12 gestational weeks at the request of the woman, and up to 20 gestational weeks if the pregnancy would adversely affect the woman's mental, physical, social, or economic status, or if it resulted from rape or incest [3]. Despite this liberal legislature, unsafe abortion continues to be one of the top five leading causes of maternal death in South Africa.

Medical abortion with mifepristone and misoprostol was approved by the Medicines Control Council of South Africa in 2001 [4]. Since then, medical abortion has been offered in this country, generally with a second follow-up appointment that confirms complete passage of the products of conception and provides contraceptive counseling. This two-visit protocol is similar to that in the USA and other countries; however, in resource-limited settings such as rural South Africa, follow-up rates are often low and maternal complications from a future undesired pregnancy are extremely high. Although exact statistics are unknown, the follow-up after medical and surgical abortion in this region is generally less than 30% (oral communication, district health specialist in KwaZulu Natal, 2015). Furthermore, abortion complications from undesired pregnancies are exceedingly high in South Africa, irrespective of a history of abortion. It is estimated that more than 100 000 women are hospitalized annually in South Africa for abortion complications [5]. In such settings where contraception is of paramount importance, a one-visit approach with contraceptive administration on the same day as medical abortion should be considered to decrease the rate of unintended pregnancy.

KwaZulu Natal—the second most populous province in South Africa—has the highest proportion of maternal deaths, accounting for 22% of pregnancy- and childbirth-related deaths nationwide [3]. In this province, the third leading cause of maternal mortality when non-pregnancy-related infections are excluded (i.e. HIV/AIDS) is complications after unsafe termination of pregnancy, and the maternal mortality rate attributable to this often preventable cause of death has risen by 85% in the past 5 years [3]. These statistics underscore the importance of preventing unplanned and unwanted pregnancies. The KwaZulu Natal Department of Health has responded by intensifying family planning and contraception services. One strategy currently in place to decrease the rate of unintended pregnancies is the insertion of an etonogestrel subdermal implant (Implanon; Merck, Kenilworth, NJ, USA) or injection of depot medroxyprogesterone acetate (DMPA) contraceptive at the same time as mifepristone administration for medical abortion.

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This one-visit strategy has obvious potential benefits; however, there is a theoretical concern that providing a progestin-based contraceptive (i.e. etonogestrel or DMPA) on the same day as mifepristone might interfere with the anti-progestin effects of mifepristone, resulting in an incomplete abortion or ongoing pregnancy. Historically, the rates of medical abortion completion using the same mifepristone and misoprostol regimen as used in South Africa (200 mg oral mifepristone, followed by 800 μg of sublingual misoprostol 24–48 hours later) is high (nearly 95%) [6]. Nevertheless, few data are available regarding the success rate of the medical abortion regimen when progestin contraceptives are administered on the same day as mifepristone [7–9].

Pharmacokinetic studies of mifepristone show that it is present in the blood within 1–2 hours of administration [10]. Etonogestrel levels sufficient to prevent ovulation can be detected within 8 hours of subdermal implant administration [8]. DMPA can also be detected as early as 20 minutes after intramuscular injection, with levels steadily peaking to effective concentrations within 24 hours [11]. In the USA, because mifepristone is a competitive inhibitor of progesterone receptors, contraception is usually initiated after documented completion of medical abortion at a follow-up visit to minimize potential abortion failure. However, even in high-income countries such as the USA, follow-up rates for medical abortion can be as low as 50% [7]. Thus, effective contraception (including progestin-based contraceptives) on the same day of medical abortion is currently being provided in some KwaZulu Natal facilities, as advised by WHO [12].

The aim of the present study was to determine the success rate of medical abortion, defined as complete passage of products of conception, at up to 63 days of pregnancy when a progestin-based contraceptive, namely an etonogestrel implant or DMPA injection, is given on the same day as mifepristone.

2. Materials and methods

In the present retrospective chart review, data were obtained for women who underwent medical abortion at two hospitals in rural KwaZulu Natal, South Africa (Lower Umfolozi District War Memorial Hospital and Eshowe Hospital) between August 1, 2013, and July 21, 2014. The period chosen reflected both the first year that the etonogestrel implant was available in KwaZulu Natal and the beginning of the same-day contraceptive initiative in this region. The medical records of women who met the inclusion criteria were eligible for the study: aged 15–49 years, elective medical termination of pregnancy with mifepristone and misoprostol, gestational age of the fetus of 63 days or less as determined by ultrasonography, receipt of either an etonogestrel implant or DMPA injection for contraception on the same day as mifepristone, and follow-up in the clinic or by phone. Charts were excluded from the study if women presented at more than 63 days of pregnancy, did not follow the study site's standard medical abortion regimen, elected for surgical abortion, did not receive contraception on the same day as mifepristone, or failed to complete follow-up.

The Institutional Review Board of University of Illinois (Chicago, IL, USA) and the Ethics Committee of Human Sciences Research Council in South Africa approved the study before it began. Informed consent was waived given the retrospective nature of the study and its status of minimal risk research without patient recruitment or contact.

All women in the study who underwent medical abortion followed the standard medical abortion protocol at each study site with 200 mg of oral mifepristone taken in the clinic, followed by 800 μg of sublingual misoprostol taken 24–48 hours later at home. The chosen method of contraception—either etonogestrel implant or DMPA injection—was administered immediately after mifepristone consumption. Women were instructed to attend follow-up 10–14 days later, at which time completion of pregnancy termination was determined by history and physical examination followed by ultrasonography if clinically suspicious for incomplete abortion (at Lower Umfolozi District War Memorial Hospital), or by ultrasonography alone (at Eshowe Hospital).

Medical abortion failure was defined as retained products of conception requiring subsequent surgical evacuation. If a woman did not return to the clinic for follow-up, a brief phone interview was conducted to verify completion of medical abortion by history alone. Phone follow-up was performed by a technique similar to previously described methods [13,14]. During the phone interview, the woman was asked a set of standardized questions, including if and how she used the misoprostol, if she had heavy bleeding and/or passed clots or tissue after misoprostol use, if she continued to have bleeding or pregnancy symptoms (i.e. breast tenderness or nausea), and if she believed she had passed the products of conception. If the interviewer believed that she had completely passed the pregnancy on the basis of her answers, a note documenting medical abortion completion was recorded in the chart. If there was a suspicion of ongoing pregnancy, the woman was asked to return for ultrasonography.

The principal investigator (J.P.) was responsible for extracting the data and performing the chart review. Eligible patients were identified from the medical abortion log books at each study site. The corresponding medical charts were then located and obtained from the medical records department at the respective facilities. After each chart was given a unique identifier number, a data collection form was completed by hand for each chart with the corresponding identifier. The completed data collection forms were entered into an Excel database (Microsoft Corporation, Redmond, WA, USA) for analysis.

To provide comparative data, a PubMed search with the terms "medical abortion," "misoprostol," and "mifepristone" was performed to identify systematic reviews demonstrating the success rates of medical abortion at 9 weeks of pregnancy or less previously published in English or as an English translation. The results were narrowed down to trials using the identical route, dosage, and timing of misoprostol and mifepristone used in the present chart review.

The primary outcome was the success rate of medical abortion when the etonogestrel implant or DMPA for contraception was given on the same day as mifepristone. Women's previous methods of contraception, and contraception chosen at the time of medical abortion were also examined.

The data were analyzed by descriptive statistics using Microsoft Excel. SPSS version 20.0 (IBM, Armonk, NY, USA) was used for statistical analysis. Independent sample t tests and χ^2 tests were used to determine whether there was a significant relationship between demographic variables and the primary outcome. $P \leq 0.05$ was taken to be statistically significant.

3. Results

A total of 89 women were included in the retrospective chart review. Table 1 shows their characteristics. The women in the study were aged between 17 and 42 years. Women presented with a mean pregnancy length of 53 ± 8 days, and all women presented at a maximum of 63 days. Among the 77 women with known HIV status, 27 (35%) were HIV-positive.

Among the 89 women receiving an etonogestrel implant or DMPA injection on the same day as mifepristone, 87 (98%, 95% confidence interval 95%–100%) had a complete termination, and 2 (2%) required surgical evacuation for an incomplete abortion (Table 2). A PubMed search indicated that this success rate was similar to that reported in a systematic review of the rate of medical abortion success without progestin contraceptive administration (94.8%) [6]. Both the failures were in women with a gravidity of 1, one at 28 days and one at 62 days of pregnancy. Both women had received DMPA for contraception on the day of mifepristone administration.

Demographic variables including patient age, gestational age, and parity were not significantly related to previous method of contraception, chosen contraception at time of medical abortion, or medical abortion success (data not shown).

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