Perioperative antibiotics to prevent infection after first-trimester abortion

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Perioperative use of antibiotics appears to prevent infection in first-trimester abortion, but adequate data are not available on the most appropriate antibiotic regimen. The level of heterogeneity between trials included in this review suggests that the beneficial effect might not apply to all settings.

RHL Commentary by Amedee Peret FJ, MD

1. INTRODUCTION

Compared with high-income countries, unintended pregnancies resulting in unsafe induced abortions are much more common in low- and middle-income countries owing to low levels of education, and lack of access to family planning methods and good-quality reproductive health services. Despite recent advances, in Brazil, abortion is permitted only in cases of rape or when there is a risk to the woman's life. Nevertheless, despite being against the law, abortion is widely practiced. It has been estimated that in 2005 2.07 abortions occurred per 100 women of reproductive age in the country (1). A recent multicenter cross-sectional study evaluating severe maternal morbidity identified that the most common causes associated with mortality and morbidity resulting from abortion were hemorrhage and infection (2). The latter was the most frequent cause of potentially life-threatening conditions in cases of unsafe abortion. Infection can lead to severe complications, if left untreated (3). This Cochrane review (4) had three objectives: (i) to evaluate the effectiveness of antibiotic prophylaxis in preventing post-abortion upper genital tract infection; (ii) to identify the most effective antibiotic regimen for preventing postabortion upper genital tract infection; and (iii) to determine the most effective strategy for preventing postabortion upper genital tract.

2. METHODS OF THE REVIEW

The reviewer authors searched for relevant trials in the Cochrane Central Register of Controlled Trials (CENTRAL), PubMed, EMBASE, POPLINE and LILAC, minimizing the likelihood of missing studies on this topic. They also contacted the study authors to request clarifications and obtain any missing data. Two reviewers independently selected references and extracted the data. Only randomized trials were included. Risk ratios (RR) were calculated with 95% confidence intervals (CI). Where appropriate, the authors used meta-analysis and examined between-trial heterogeneity using the I2 test. If there was statistical evidence of severe between-trial heterogeneity (I2 > 75%), no meta-analysis was carried out. Hence, the review methods were appropriate and, along with the results, have been well described in the review.

3. RESULTS OF THE REVIEW
The review authors analysed 19 randomized controlled trials, 15 comparing antibiotics with placebo, three comparing different antibiotic regimens, and one that had analysed a screen-and-treat strategy for sexually transmitted infections (STI). A total of 9715 women had participated in the included trials, out of which 660 women had been found to have developed postabortion upper genital tract infection. The majority of trials included in the review did not evaluate a strategy of universal antibiotic prophylaxis since in practice it would have implied giving prophylaxis to all women without screening for STIs. None of the trials had been conducted in developing countries and there were no trials of antibiotic use with medical abortions. Trials comparing antibiotics with placebo reached statistical significance with an average reduction of postabortion infections of 41% (RR 0.59, 95% CI 0.46–0.75). However, a strong risk of small-study bias and heterogeneity within the included studies was identified by the authors. This review did not determine the most effective antibiotic regimen because there were too few trials that had made such comparisons. In stratified analyses of placebo-controlled trials, nitroimidazoles prevented postabortion upper genital tract infections with no evidence of between-trial heterogeneity.

4. DISCUSSION

4.1 Applicability of the results

Perioperative antibiotics appear to prevent infection following first-trimester abortion, but data are inadequate to answer the question about the most appropriate antibiotic regimen for this intervention. The level of between-trial heterogeneity suggests that the beneficial effect observed when antibiotic use is compared to placebo may not apply equally to all settings.

4.2 Implementation of the intervention

General use of perioperative antibiotics during first-trimester surgical abortion is effective in preventing postabortion upper genital tract infection. A perioperative single-dose regime of nitroimidazoles or tetracyclines seems to be safe and effective, but in practice the antibiotic prophylactic regimen should be selected based on the local epidemiology of lower genital tract infection and protocols.

STIs, including Chlamydia, are strongly associated with postabortion upper genital infection and available literature suggests that there is more than fivefold increase in the relative risk of postabortion endometritis among women with microscopic characteristics of bacterial vaginosis (5). This author agrees with Pattinson (6) that, in populations with high prevalence of STIs and postabortion infections, pregnant women presenting with a first-trimester abortion should be regarded as at risk of infectious morbidity. Preventing these complications is particularly important in childbearing women, not only to reduce mortality but also to reduce the risk of infertility.

Clinicians must prescribe perioperative antibiotics during first-trimester abortion. In settings with high prevalence of STIs and postabortion infections, the use of perioperative antibiotics has an even greater protective impact. It is recommended that clinicians and policy-makers enhance the development of clinical protocols and systems to collect outcome data to help document the efficacy of this intervention in such settings.

4.3 Implications for research

Further trials on this topic must compare prophylactic regimens of different antibiotics or combinations of antibiotics. Such trials could be done in low- and middle-income country settings in which the prevalence of lower genital infection is high and maternal morbidity and mortality related to surgical induced abortion remains a serious public health problem.
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