

Research shines light on preventing infection after miscarriage

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New international guidelines on how to provide treatment for women having miscarriage surgery are needed after a large-scale international trial led by the University of Birmingham examined if antibiotics can avoid the surgical complication of a potentially fatal pelvic infection.

Published today (March 13th) in the *New England Journal of Medicine* (NEJM), the trial involved thousands of women at hospitals across four low and [middle income countries](#) and investigated whether giving a preventative single dose of inexpensive and widely available antibiotics to women prior to surgery reduces the risk of pelvic infection.

Sometimes not all of the pregnancy tissue contents of the womb come away on their own after a [miscarriage](#). When this occurs, surgery may be required to remove it. Miscarriage surgery is one of the most common surgical procedures carried out around the world.

The results of the trial showed that giving antibiotics prior to miscarriage surgery did not result in a significant reduction in pelvic infection within 14 days post-surgery if clinical judgement was used to determine if there was an infection or not, however, when the strict international definition of pelvic infection was used then antibiotics were beneficial.

Before this study there was little information to guide practice, despite it being such a common procedure. Now practitioners and policy makers have high quality evidence.

It is particularly important to ensure that antibiotic prescribing is guided by the highest quality evidence to ensure we minimise unnecessary antibiotic use, which can fuel antibiotic resistance. International guidelines and practice should now be reassessed in light of this evidence.

The research, which was funded by MRC, Wellcome Trust, and UK Aid, was led by researchers at the Institute of Metabolism and Systems Research, the Institute of Applied Health Research, and the Health Economics Unit at the University of Birmingham.

Just over 3,400 women were recruited to the randomized trial between June 2014 and April 2017 from 13 hospitals across Malawi, Tanzania, Uganda and Pakistan. All women who took part were scheduled for surgery after suffering a miscarriage when they were less than 22 weeks pregnant.

Two hours before surgery, half of the participants were given two antibiotics—doxycycline and metronidazole—while the other half were given a placebo. The results showed that when pelvic infection was defined by strict international criteria there was a 40 per cent reduction in infection in women who received antibiotics (infection rate was 1.5% and occurred in 26 out of 1,700 pregnancies), compared to those who did not receive any antibiotics (infection rate was 2.6% and occurred in 44 of 1,704 pregnancies). The rate of pelvic infection was 4.1% in the antibiotic group (68 out of 1,676 pregnancies), compared with 5.3% (90 out of 1,684 pregnancies) in the placebo group if pelvic infection was defined pragmatically by clinicians.

Lead author Dr. David Lissauer, of the University of Birmingham, said: "The question of whether to use antibiotics is particularly important in low and [middle-income countries](#).

"Rates of surgery for miscarriage are high owing to low uptake of non-surgical management approaches, infections are more common following surgery in these countries versus higher resource countries, and access to resources to care for women who do develop complications is poor.

"Before the AIMS trial we had no idea what the right thing was to reduce the serious complication of pelvic infection.

"We finally now have the highest quality evidence that a single, cheap, preventative dose of two commonly available [antibiotics](#) was not only safe but also appeared to reduce pelvic infection if the [infection](#) was diagnosed using strict international criteria."

Arri Coomarasamy, Professor of Gynaecology at the University of Birmingham and Director of Tommy's National Centre for Miscarriage Research, added: "Prior to our study there has been little evidence to guide clinical practice, with previous trials evaluating antibiotic treatment pre-surgery in patients undergoing miscarriage [surgery](#) being limited by their size and quality.

"Through carrying out a study on such a large scale across multiple hospitals and countries we now have valuable evidence.

"We hope that this evidence will now be used to shape international guidelines and policy practice and will lead to improved treatment for [women](#), potentially saving lives."

More information: Lissauer et al (2019). 'A randomized trial of prophylactic antibiotics for miscarriage surgery'. *New England Journal of Medicine (NEJM)*.

Provided by University of Birmingham

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