Misoprostol in the management of the third stage of labour in the home delivery setting in rural Gambia; a randomised controlled trial

Background Postpartum haemorrhage (PPH) is a major cause of maternal deaths worldwide, and the highest proportion of such deaths occur in areas where maternal mortality is high. For many women in the developing world home birth remains a strong preference, and often the only option. It is in these settings that there is a need to assess the life-saving potential of misoprostol where its ease of administration, stability and low-cost could have major implications for the health of women. The primary endpoints of this randomised controlled trial in the home birth situation in rural Gambia were blood loss ≥500 ml, and postpartum anaemia < 8 g/dl 3-5 days postpartum. Secondary endpoints were blood loss ≥ 750 and ≥ 1000 ml, mean blood loss, postpartum Hb ≥ 2gr/dL lower than pre-delivery Hb, mean drop in Hb, and maternal mortality or severe morbidity requiring hospital admission. Side-effects were recorded as well.

Methods 52 birth attendants from 26 rural villages were trained in the local hospital to administer the study drugs according to protocol and to collect blood immediately after birth. Each woman delivering at home with a study birth attendant and who gave informed consent was randomly assigned to one of two drug regimens. One regimen included 3 x 200 µg misoprostol tablets and placebo. The other regimen included a placebo and 4x 0.5mg ergometrine tablets (standard treatment). Tablets were taken orally immediately after delivery.

Findings Between August 2001 and May 2004 630 women were randomly assigned misoprostol, and 599 women ergometrine. The two groups were similar with regard to baseline characteristics and risk factors associated with the primary outcomes, except for the mean haemoglobin level at the last ANC visit that was on average 0.17 gr/dL lower in the misoprostol group. Measured blood loss ≥ 500 ml was similar in the misoprostol (11.0%) and ergometrine (12.0%) groups (69/629 vs 72/599; relative risk 0.90; 95% confidence interval 0.64 to 1.28). There was also no difference in mean bloodloss. There was reduced blood loss ≥ 750 mls and ≥ 1000 mls in the misoprostol group, but the incidences were low and the differences between the groups not statistically significant . Postpartum Hb<8 gr/dL was 19.8% in the misoprostol group and 23.1% in the ergometrine group (124/626 vs 138/598; relative risk 0.82; 95% CI 0.63 to 1.08). Adjusted for the difference in Hb at the last ANC in the 2 groups, postpartum Hb<8 gr/dL was significantly less frequent with misoprostol. Postpartum Hb ≥ 2gr/dL lower than pre-delivery was 16.2% in the misoprostol group and 21.8% in the ergometrine group (99/610 vs 128/588; relative risk 0.70; 95% CI 0.52 to 0.93). Mean drop in haemoglobin was significantly lower in the misoprostol group than in the ergometrine group. There were 2 maternal deaths in the study population (maternal mortality ratio 163 per 100,000 live births; both deaths were in the misoprostol group), and 5 cases of severe morbidity requiring admission in hospital (2 in the misoprostol group, and 3 in the ergometrine group). Shivering was significantly more common with misoprostol, while vomiting was more common with ergometrine. No severe side effects were noted.

Interpretation This is the first randomised controlled trial of misoprostol for prevention of PPH in home births. 600µg oral misoprostol is looking promising compared to 2mg oral ergometrine in the active management of the third stage of labour. More studies are needed, especially large placebo randomised controlled trials to examine whether misoprostol is efficacious in the prevention of PPH, and a suitable alternative to oxytocin in low-resource settings.