Umbilical vein injection for the routine management of third stage of labour

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There is insufficient evidence to recommend the use of intraumbilical vein injection of oxytocin as a treatment for retained placenta.

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Evidence summary

The evidence concerning the use of intraumbilical vein injection was summarized in a systematic review which included 15 randomized trials (>1700 women).

- The trials included in the review compared the use of intraumbilical vein injection of saline versus expectant management (four studies, 413 women), intraumbilical vein injection of saline plus oxytocin versus expectant management (five studies, 454 women), intraumbilical vein injection of saline plus oxytocin versus saline (twelve studies, 1276 women), intraumbilical injection of oxytocin versus plasma expander (one RCT, 109 women), and intraumbilical injection of prostaglandin solution versus saline versus oxytocin (two studies, 82 women). Some of the trials compared more than two interventions.

Intraumbilical vein injection of saline versus expectant management

- There were no significant differences in reported rates of the manual removal of the placenta (RR 0.99; 95% CI 0.84 to 1.16), blood loss ≤500 ml (RR 0.98; 95% CI 0.52 to 1.82), blood loss >1000 ml (RR 0.73; 95% CI 0.17 to 3.11), or blood transfusion (RR 0.76; 95% CI 0.41 to 1.39)

Intraumbilical vein injection of saline plus oxytocin versus expectant management

- A slightly lower rate of manual removal of the placenta was recorded in the group given saline and oxytocin, although this difference was not statistically significant (RR 0.87; 95% CI 0.74 to 1.03). Rates of blood loss ≤500 ml (RR 1.51; 95% CI 0.87 to 2.60), blood loss >1000 ml (RR 1.29; 95% CI 0.38 to 4.34), and blood transfusion (RR 0.89; 95% CI 0.5 to 1.58) were not statistically significant, and wide confidence intervals were reported.

Intraumbilical vein injection of saline plus oxytocin versus saline
• There was a trend towards a lower risk of manual removal of the placenta in the group given saline and oxytocin (RR 0.91; 95% CI 0.82 to 1.00) up to a confidence interval of 1. No differences were found in rates of blood loss ?500 ml, blood loss >1000 ml, or the use of blood transfusion.

Intraumbilical injection of oxytocin versus plasma expander

• There were no significant differences in rates of manual removal of the placenta or of blood loss >1000 ml. The sample size was small.

Intraumbilical injection of prostaglandin solution versus saline

• A lower rate of manual removal of the placenta was reported in women who received an intraumbilical vein injection of prostaglandin solution (9 of 31 women) compared with those who received saline (14 of 20 women) (RR 0.42; 95% CI 0.22 to 0.82). These sample numbers were too small to provide any reliable conclusion. Blood loss was not reported, and there was no statistically significant differences reported for the use of additional uterotonics between the groups.

Intraumbilical vein injection of prostaglandin solution versus oxytocin

• A lower rate of the manual removal of the placenta was noted in women who received an intraumbilical vein injection of prostaglandin solution (9 of 31 women) compared with those who received oxytocin (21 of 31 women) (RR 0.43; 95% CI 0.25 to 0.75). Evidence for these conclusions was based on two very small trials with a high risk of detection bias. Blood loss was not reported, and there was no statistically significant difference for the use of additional uterotonics between the groups.

Cochrane review


Abstract

Postpartum haemorrhage is among the biggest contributor to maternal mortality worldwide. Prevention of this condition includes routine use of uterotonic in the third stage of labour, which has been recommended throughout the world. Use of umbilical route to deliver this uterotonic after delivery of the baby has been proposed. Therapeutic use of this has been assessed, although routine (prophylactic) use of this has not been evaluated.

To compare, from the best available evidence, the effects of umbilical vein injection of a saline solution alone or with any uterotonic drug versus an alternative solution with or without any other uterotonic agent or expectant management or any other method for routine management of the third stage of labour, on maternal and perinatal outcomes.
We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (31 January 2012) and reference lists of retrieved studies.

We included all randomised controlled trials comparing the effects of umbilical vein injection of a saline solution alone or with any uterotonic drug versus any other alternative methods.

Two review authors independently assessed the eligibility and trial quality. Two review authors extracted data. Data were checked for accuracy.

We included nine studies involving 1118 women.

We identified four comparisons. One comparison included six studies (which randomised 394 women) comparing umbilical vein injection of normal saline plus oxytocin versus that of normal saline, as well as three other comparisons, each of which included one study. Comparing intraumbilical injection of normal saline plus oxytocin with intraumbilical injection of saline only, there was no evidence of difference in any of the relevant outcomes reported namely the number of women who required blood transfusion, the incidence of manual removal of placenta, blood loss, and length of the third stage of labour. Subgroup analyses by both total amount of solution administered and dose of oxytocin showed no evidence of difference. Other comparisons included only one study for each, and there was no relevant information available.

Routine use of oxytocin or any other uterotonics with normal saline via umbilical vein injection is not recommended until new evidence is available. Further research should be conducted to show effectiveness of oxytocin with normal saline via umbilical vein injection.

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