

DOES ROUTE MATTER? INTRAVENOUS VERSUS INTRAMUSCULAR OXYTOCIN FOR THE PREVENTION OF POSTPARTUM HEMORRHAGE

Postpartum hemorrhage (PPH), excessive bleeding after childbirth, is a complication most commonly due to a failure of the uterus to contract. Medicines such as oxytocin, given as prophylaxis immediately after delivery, have been shown to reduce blood loss and the incidence of PPH.

While oxytocin is considered a safe and effective medicine for PPH prevention and is widely recommended, there is limited information about the impact the different routes of administration may have on postpartum blood loss. Indeed, much of the literature and guidelines on PPH prevention simply presume that routes of oxytocin administration perform similarly.

To fill the gap in evidence, a series of randomized controlled trials (RCT) were conducted among women with vaginal births in tertiary-level hospitals to compare the effect on postpartum blood loss of the most common routes of oxytocin administration: intravenous infusion (IV), IV bolus, and intramuscular (IM) injection of 10 IU oxytocin.

Studies comparing oxytocin route in PPH prevention

Design	Country	Number	Study arms
Open-label RCT	Vietnam	322	IV infusion vs. IM injection
Open-label RCT	Turkey	319	IV infusion vs. IM injection
Open-label RCT	Egypt	4913	1. IV infusion vs. IM injection 2. IV bolus vs. IM injection
Double-blind, placebo-controlled, RCT	Argentina	In progress	IV infusion vs. IM injection

IV: a gravity-driven infusion of fluid and oxytocin administered into a vein; **IV bolus or push:** oxytocin injected into the IV port administered into a vein; **IM:** a single injection directly into a muscle, usually the thigh

Which route of oxytocin administration is most effective for PPH prevention?

- The study in Vietnam found IV infusion to be more effective, compared to IM injection, in lowering blood loss, whereas the study in Turkey did not reveal any difference between the two routes.
- In the Egypt study, blood loss after delivery was significantly lower when oxytocin was given by IV infusion or IV bolus, compared to IM injection.
- There were no side effects associated with any route.
- **Main conclusion/interpretation:** Oxytocin may not have equivalent efficacy if administered by different routes.

Considerations for clinical practice:

- If an IV line is already in place, oxytocin infusion may be preferable to IM injection for the prevention of PPH.
- Giving a prophylactic dose of oxytocin by IV bolus is a safe option in vaginal births for PPH prevention and should be considered when IV infusion is not feasible.
- IM injection may be the fastest way of administering a prophylactic uterotonic after childbirth if no IV line or port is set up.

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