Hydroxyethyl Starch for Postpartum Hemorrhage: A Review

Context
Vaginal bleeding following delivery of a baby is normal as the body rids itself of the tissue that supported the pregnancy. However, heavy bleeding with a blood loss of 500 mL or more within 24 hours of giving birth is abnormal and is called a primary postpartum hemorrhage (PPH). Risk factors for PPH include retained pieces of placenta, an overly distended uterus because of excess amniotic fluid or a large baby, a precipitous delivery, more than one baby, prolonged labour, and bleeding disorders. In Canada, almost 5% of pregnant women experience PPH. The severity of PPH can vary, but it can lead to significant morbidity and mortality — with 1.5 maternal deaths per 100,000 live births in Canada.

Technology
Fluid resuscitation is an important component of PPH treatment. Two main types of intravenous (IV) fluid are used: crystalloid and colloid solutions. Colloid solutions include natural colloids (i.e., human albumin) and synthetic colloids (i.e., dextran, gelatin, and starches). Unlike crystalloids, colloids contain insoluble molecules which act to preserve osmotic pressure within the blood. Hydroxyethyl starch is a form of plant starch that has been partially hydrolyzed to extend the duration of action of the molecule.

Issue
Previous reviews, including a review by CADTH, have shown that hydroxyethyl starch IV fluids increase the risk of adverse events such as renal damage, bleeding, and refractory pruritus. A review of the clinical effectiveness and associated harms of hydroxyethyl starch in patients with PPH and a review of clinical guidelines will help to inform decisions about its use.

Methods
A limited literature search was conducted of key resources, and titles and abstracts of the retrieved publications were reviewed. Full-text publications were evaluated for final article selection according to predetermined selection criteria (population, intervention, comparator, outcomes, and study designs).

Key Messages
- Clinical evidence on the use of hydroxyethyl starch IV fluid to treat PPH is lacking.
- One evidence-based clinical practice guideline recommends isotonic crystalloid IV fluid over colloid IV fluid (including hydroxyethyl starch) for the treatment of PPH.
- This guideline recommendation is based on evidence from studies on critically ill patients, not patients with PPH.

Results
The literature search identified 31 citations, 1 of which was deemed potentially relevant. An additional 17 reports were found from other sources. Of these 18 studies, 1 clinical practice guideline met the criteria for inclusion in this review.