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# Carbetocin versus oxytocin for the prevention of postpartum hemorrhage: A meta-analysis of randomized controlled trials in cesarean deliveries.

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### Abstract

**OBJECTIVE:** Postpartum hemorrhage remains the leading cause of maternal mortality in developing countries and a significant proportion of these cases are attributable to uterine atony. In contrast to the advances made in the treatment of postpartum hemorrhage, there has been few novel prophylactic agents. This study was undertaken to analyze the effectiveness of carbetocin compared to oxytocin for the prevention of postpartum hemorrhage, in the context of cesarean deliveries.

**MATERIALS AND METHODS:** Major electronic databases were searched for randomized-controlled trials comparing carbetocin with oxytocin. Only trials involving cesarean deliveries were included. Non-randomized trials, non-cesarean deliveries, studies which did not directly compare carbetocin to oxytocin and studies which did not analyze the intended outcomes were excluded. Outcomes analysed were postpartum hemorrhage, additional use of uterotonic and transfusion requirement.

**RESULTS:** Seven studies involving 2012 patients were included in the meta-analysis. There was a significant reduction in the rates of postpartum hemorrhage (RR 0.79; 95% CI 0.66 to 0.94;  $p = 0.009$ ), use of additional uterotonics (RR 0.57; 95% CI 0.49 to 0.65;  $p < 0.001$ ) and transfusion (RR 0.31; 95% CI 0.15 to 0.64;  $p = 0.002$ ) when carbetocin rather than oxytocin was used. There was significant heterogeneity across studies however, for the outcome of additional uterotonic usage.

**CONCLUSION:** Carbetocin is effective in reducing the use of additional uterotonics, reduction in postpartum hemorrhage and transfusion when used during cesarean deliveries. However, despite the potential benefits illustrated in this meta-analysis, the disparity between the cost of carbetocin and oxytocin suggests that locoregional cost-effectiveness analysis should be performed before any decision is made to adopt it for routine prophylaxis.

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**KEYWORDS:** Carbetocin; Cesarean section; Postpartum hemorrhage; Transfusion; Uterine atony

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