

5<sup>th</sup> World Congress on  
**WOMEN'S HEALTH AND MIDWIFERY**

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## **Recent advances in the use of uterotonics in the prevention of postpartum hemorrhage**

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**P**rimarily postpartum hemorrhage (PPH) is one of the leading causes of maternal morbidity and mortality worldwide. The most common cause of primary PPH is uterine atony. Atonic PPH rates are increasing in developed countries despite routine active management of the third stage of labor. In less-developed countries, primary PPH remains the leading cause of maternal death.

Various uterotonics have been used over the years. Oxytocin, Ergometrine, Misoprostol and PGF<sub>2</sub>-alpha have been extensively studied. Recently Carbetocin, an analog of Oxytocin has been added to the armamentarium of postpartum hemorrhage. However, the optimal route and dose of these drugs are still being studied. Oxytocin induces superior myometrial contractions compared with Ergonovine, PGF<sub>2</sub> $\alpha$ , and Misoprostol. The effect of Oxytocin is reduced in myometrium of women with Oxytocin-augmented labor; however, it is still superior to the other uterotonics. Various routes and doses of Oxytocin have been studied. 10 IU Intramuscular injection, 10 IU intravenous infusion, and 10 IU intravenous bolus of Oxytocin in the third stage of labor for prevention of postpartum hemorrhage have been studied.

Clinical effects may also be different if intravenous Oxytocin is delivered via bolus push or over a longer duration via dilute infusion. While there is some evidence that the more immediate, higher concentration of bolus delivery could lead to stronger effect on uterine contractions this route is less frequently used due to fear of hypotension, although this problem has only been noted in case studies of women under general anesthesia during caesarean section.

One study shows that in comparison to IM injection, mean blood loss was 5.9% less with IV infusion and 11.1% less with IV bolus Oxytocin. Other studies show that 5 IU of Oxytocin IV bolus was as effective as 10 IU, with lesser variation in the heart rate and blood pressure. Doses of 3IU bolus have been studied and have been shown to be as effective as the 10 IU intravenous bolus doses of Oxytocin with fewer adverse effects. Although the value of routine oxytocics to reduce postpartum hemorrhage after vaginal birth has been well established, their value in caesarean section has received little attention. It has been assumed that the benefits of oxytocics observed at vaginal birth also apply to caesarean section.

The guidelines of the Royal College of Obstetricians and Gynecologists (UK) on caesarean section recommend a slow intravenous bolus dose of 5 IU of Oxytocin after delivery of the infant. This dose is based on the principles of active management of the third stage of labor and is consistent with practice across most of Europe and Australia. The route of Oxytocin has been studied by various researchers. IV infusion of Oxytocin has been preferred during cesarean section as an IV line would have been already secured and it has faster plasma peak concentration as in comparison to the IM route. IV bolus Oxytocin has been associated with a faster peak plasma concentration of Oxytocin, faster uterine contraction; it also has been associated with sudden hypotension. Hypotension during cesarean section has been associated with higher dosages of Oxytocin. It has also been associated with general anesthesia.

Various studies show that IV bolus route could be non-inferior to the IM route and could be considered in patients who cannot be administered IM injections. Carbetocin is also another promising drug. It has been prioritized due to its heat stable property. But it is also long acting and reduces the need of infusions. It is still an expensive drug in many countries.

**Conclusion:** There is a lot of scope for research in the field of uterotonics. Newer developments should be included for the prophylaxis and treatment of Postpartum Hemorrhage.

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**Biography**

Rajasri g yaliwal is an associate professor in the department of obstetrics and gynecology, BLDE (Deemed to be University), Shri BM Patil Medical College, Hospital and Research Center: Vijayapura, Karnataka, India. She is interested in postpartum hemorrhage and preeclampsia. She takes interest in teaching both undergraduates and postgraduate students. She has delivered many lectures on health issues at public forums on adolescent health, postpartum hemorrhage and also radio talks of various issues on women's health.

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