Evaluating the Efficacy of a Revised Uterotonic Protocol on Maternal Outcomes During Cesarean Delivery at AIC Kijabe Hospital, Kenya: A PICO-Based Quality Improvement (QI) Study

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ABSTRACT

Postpartum hemorrhage (PPH) remains a leading cause of maternal morbidity. This study at AIC Kijabe Hospital, Kenya, evaluates a revised uterotonic protocol during cesarean delivery to enhance maternal outcomes. Unlike the standard protocol, which employs high-dose oxytocin, Cytotec, and TXA as needed, the revised protocol introduces **smaller, repeated oxytocin doses**, **calcium gluconate for uterine contraction**, and **targeted administration of Cytotec, TXA, and Methergine** based on blood loss and uterine tone. By assessing **blood loss, transfusion needs, hemoglobin changes, and side effects**, this study aims to establish a safer, more effective approach to PPH prevention in low-resource settings.

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INTRODUCTION

Objective
To evaluate the effectiveness of a revised uterotonic protocol compared to the current standard in improving maternal outcomes during cesarean delivery. The study will focus on: Blood loss,Transfusion requirements, Hemoglobin (Hb) changes, Side effects (nausea, vomiting, headache, hypotension), Use of Cytotec, Tranexamic Acid (TXA), and Methergine.

Uterotonics are essential in managing postpartum hemorrhage and ensuring maternal safety during cesarean deliveries. Existing protocols involve variable dosing and criteria, affecting patient outcomes. This study assesses whether a revised uterotonic protocol improves outcomes compared to the current standard at AIC Kijabe Hospital.

METHODS AND MATERIALS

A **QI** study comparing retrospective the current and revised uterotonic outcomes between protocols in pregnant women ≥34 weeks gestation undergoing emergency or elective cesarean section**s** at AIC Kijabe Hospital.
Current Protocol: Oxytocin 10 units IV bolus, followed by a variable rate infusion of 30 units, Cytotec and TXA as needed
Revised Protocol:
- Oxytocin 3 units IV bolus, followed by 3 units every 3 minutes until uterine tone is adequate
- Calcium Gluconate (2 grams IV) administered 1 minute after clamping the umbilical cord
- Cytotec, TXA, and Methergine administered based on specific criteria

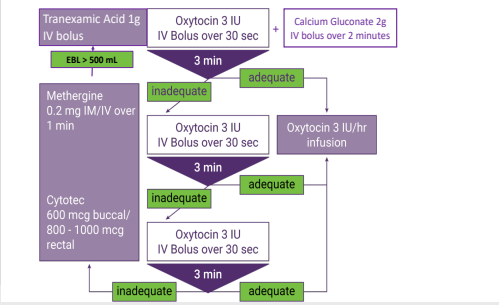
Data Collection:
- Patient records analyzed for estimated blood loss, transfusion rates, Hb changes, and side effects.

Criteria for Cytotec, TXA, and Methergine Use
Cytotec:
- Blood loss >500 ml
- Inadequate uterine tone 10-15 minutes post-oxytocin
- High risk for PPH (e.g., multiple gestations, history of PPH, polyhydramnios)

TXA:
- Blood loss >500 ml
- Ongoing bleeding unresponsive to uterotonics
- Risk of coagulopathy
- Early hemorrhage signs (tachycardia, hypotension)

Methergine:
- Uterine atony persists **>30 minutes** despite Oxytocin & Cytotec
- Blood loss **>1000 ml**
- High risk for uterine atony (**Contraindicated in uncontrolled hypertension**)

Method Flowchart:



RESULTS

Expected Results:
Reduced blood loss and transfusion requirements
Stable hemoglobin levels
Lower incidence of nausea and hypotension
More targeted administration of Cytotec, TXA, and Methergine.

DISCUSSION

The revised protocol is expected to demonstrate improved maternal safety, with reductions in blood loss, transfusions, and adverse effects. Further analysis and long-term follow-up will refine the protocol and ensure optimal patient care.

CONCLUSIONS

This Quality Improvement (QI) study supports the revised uterotonic protocol as a potential enhancement for maternal outcomes during cesarean deliveries at AIC Kijabe Hospital. The results may contribute to evidence-based changes in hospital practices for better maternal care and safety.

REFERENCES

1. Heesen M, Carvalho B, Carvalho JCA, Duvekot JJ, Dyer RA, Lucas DN, et al. International consensus statement on the use of uterotonic agents during caesarean section. Anaesthesia. 2019;74(10):1305-19.
2. Ansari JR, Yarmosh A, Michel G, Lyell D, Hedlin H, Cornfield DN, et al. Intravenous calcium to decrease blood loss during intrapartum cesarean delivery: a randomized controlled trial. Obstet Gynecol. 2024;143(1):104-12.