MISOPROSTOL VERSUS METHYLERGOMETRIN IN PREVENTION OF POSTPARTUM HAEMORRHAGE AFTER CAESARIAN SECTION

Thesis

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Abstract

Objective:

The aim of the present study is:

To compare the effectiveness of rectal Misoprostol (400ug) administered immediately preoperative with intramuscular Methylergometrine (0.2mg) in reducing blood loss during caesarean section and to compare the ability to maintain adequate uterine tone and to reduce the incidence and severity of postpartum haemorrhage

Study design:

Randomized controlled prospective study on ٨٠ women were going to do Caesarean section 40 patients will receive immediately preoperative rectal Misoprostol (400ug) and 40 patients will receive after delivery of the foetus intramuscular Methylergometrine (0.2mg) .

The primary outcome:

The primary outcomes were to compare the occurrence of major obstetric haemorrhage and need for uterine massage and additional uterotonic agents. Secondary outcomes included estimated mean operative loss, objective changes in haemoglobin and haematocrite, preoperative and postoperative blood pressure and pulse, severe anaemia, need for blood transfusion, side effects and postnatal hospital stay.

Results:

Patients received misoprostol developed less postpartum haemorrhage, required less intervention with less mean operative blood loss.

Conclusion:

Misoprostol seems to be more effective in maintaining adequate uterine tone and preventing excessive blood loss in patients undergoing caesarean section.

Keywords:

Postpartum haemorrhage, caesarean section, uterotonic agents.

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List of Abbreviations

HIV:	**Human Immunodeficiency Virus**
UI:	**Urinary Incontinence**
C.S:	**Caesarean Section**
AVMS:	**Arterio-venous malformations**
CDMR:	**Caesarean Delivery On Maternal Request**
NIH:	**National Institutes Of Health**
ACOG:	**American College of Obstetricians and Gynaecologists**
IV:	**Intravenous**
CBC:	**Complete Blood Count**
DIC:	**Disseminated Intravascular Coagulopathy**
PT:	**Prothrombin Time**
Aptt :	**Activated Partial Thrompoplastin Time**
MRSA:	**Methicillin Resistant Staphylococcus**
APH :	**Antepartum Haemorrhage**
PPH:	**Postpartum Haemorrhage**
ML :	**Milliliter**
MIN:	**Minute**
CCT:	**controlled cord traction**
PET:	**Pre Eclampsia Toxaemia**
BMI:	**Body Mass Index**
HB:	**Haemoglobin**
NSAIDS:	**Non Steriodal Anti inflammatory Drugs**
WK:	**Week**
Cpd:	**Cephalo Pelvic Disproportion**
ITP:	**Idiopathic Thrombocytopenic Purpura**

HELLP: **Haemolysis, Elevated Liver Enzymes, and Low Platelet Count**

CCT: **Controlled Cord Traction**

AMTSL: **Active Management of Third Stage of Labour**

FFP : **Fresh Frozen Plasma**

rFVIIa: **Recombinant Human Activated Factor VII**

PGF2: **Prostaglandine F2**

PGE1: **Prostaglandine E1**

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INTRODUCTION

Postpartum haemorrhage (PPH) is the leading cause of maternal death worldwide, with an estimated mortality rate of 140 000 women per year, or 1 maternal death every 4 minutes ***(Leduc et al., 2009).***

PPH occurs in 5% of all deliveries and is responsible for a major part of maternal mortality ***(Reynders et al., 2006).***

The majority of these deaths occur within 4 hours of delivery, which indicates that they are a consequence of the third stage of labour ***(Ramanathan et al., 2006).*** Non-fatal PPH results in further interventions, iron deficiency anaemia, pituitary infarction (Sheehan's syndrome) with associated poor lactation, exposure to blood products, coagulopathy, and organ damage with associated hypotension and shock ***(Leduc et al., 2009).***

Since all parturient women are at risk for PPH, care providers need to possess the knowledge and skills to practice active management of the third stage of labour, to prevent PPH and to recognize, assess, and treat excessive blood loss ***(Leduc et al., 2009).*** Caesarean section is a recognized risk factor for PPH and the worldwide caesarean delivery rate is increasing ***(viler et al., 2006).***

Systematic reviews have concluded that active management of third stage of labour, particularly the prophylactic use of uterotonic agents can significantly decrease the incidence of postpartum haemorrhage compared with that of expectant management. An ideal uterotonic agent should promote prompt, strong and sustained uterine

contractions after intramuscular (IM) injection without any significant adverse effects ***(Leung et al., 2006).***

The administration of oxytocics after the delivery of the neonate reduces the likelihood of PPH and 5 IU oxytocin by slow intravaenous injection is currently recommended for all caesarean sections ***(NICE, 2007).*** However, the use of additional oxytocic medication is common ***(Wedisinghe et al., 2008),*** to arrest bleeding, or prophylactically if there are risk factors for PPH.

Carbetocin is a synthetic analogue of human oxytocin with structural modifications that increase its half-life thereby prolonging its pharmacological effects.

Misoprostol is a synthetic prostaglandin E1 analogue that has been found to be as effective as dinoprostone and oxytocin in inducing labour and as a uterotonic agent ***(Elhassan et al., 2007).***

AIM OF THE WORK

- To compare the effectiveness of rectal Misoprostol (400ug) administered immediately preoperative with intramuscular Methylergometrine (0.2mg) in reducing blood loss during caesarean section and

- To compare the ability to maintain adequate uterine tone and to reduce the incidence and severity of post-partum haemorrhage .

CESAREAN SECTION

Definition

A Caesarean section is a surgical procedure in which an incision is made through a mother's abdomen (laparotomy) and uterus (hysterotomy) to deliver one or more babies. This definition does not include removal of the foetus from the abdominal cavity in the case of rupture of the uterus or in the case of an abdominal pregnancy ***(Barros et al., 2004; and Lavender et al., 2005)***

A Caesarean section is often performed when a vaginal delivery would put the baby's or mother's life or health at risk. Some are also performed upon request without a medical reason to do so.

Types

1-Planning Caesarean Delivery

A planned caesarean delivery is one that is recommended because of the increased risk(s) of a vaginal delivery to the mother or her infant. There are a number of medical and obstetric circumstances that a healthcare provider would recommend scheduling a caesarean delivery in advance. Some of these circumstances are listed below:

- The mother has had a praevious caesarean delivery or other surgery in which the uterus was cut open. A vaginal delivery is possible after caesarean delivery in some, but not all cases
- There is some mechanical obstruction that prevents or complicates vaginal delivery, such as large fibroids or a pelvic fracture.
- The infant is unusually large, especially if the mother has diabetes.
- The mother has an active infection, such as herpes or HIV, that could be transmitted to the infant during vaginal delivery
- The birth involves multiple gestation (twins, triplets, or more).

- The woman has cervical cancer.
- The infant has an increased risk of bleeding.
- The placenta is covering the cervix (called placenta Praevia).

One of the most important factors in scheduling a caesarean delivery is making certain that the baby is ready to be delivered. In general, caesarean deliveries are not scheduled before the 39th week of pregnancy. An amniocentesis may be recommended to determine if the baby's lungs are fully developed, especially if caesarean is planned before 39 weeks of pregnancy. Most women will meet with an anaesthesiologist before planned surgery to discuss the various types of anaesthesia available and the risks and benefits of each. Instructions about how to prepare for surgery will also be given, including the need to avoid all food and drinks for 10 to 12 hours before the surgery.

Advantages of planned caesarean: The advantages of a planned caesarean delivery include:

- It allows parents to know exactly when the baby will be born, which makes issues related to work, childcare, and help at home easier to address.
- It avoids some of the possible complications and risks to the baby.
- It avoids the possibility of post term pregnancy, in which the baby is born two or more weeks after its due date.
- It helps ensure that a pregnant woman's obstetrician will be available for the delivery.
- It may offer a more controlled and relaxed atmosphere, with fewer unknowns such as how long labour and delivery will last.
- It may minimize injury to the pelvic muscles and tissues and the anal sphincters. These injuries sometimes occur during vaginal delivery, which may increase the risk of urinary or anal incontinence.

The benefits of planned caesarean delivery must be weighed against the risks. Caesarean delivery is a major surgery, and has associated risks ***(Keith et al., 2007).***

2-Emergency Caesarean Delivery

In some cases, caesarean delivery is performed as an emergency surgery, after attempting apraevious vaginal delivery. Time may be of the essence, depending upon the situation. Caesarean deliveries performed due to concerns about the mother's or infant's health are started as quickly as possible. In contrast, if a caesarean is performed because labour has not progressed normally or for other, less serious concerns about the baby's wellbeing, the surgery is usually begun within 30 to 60 minutes ***(Keith et al., 2007).***

3-Maternal Request Caesarean Delivery

Caesarean deliveries that are done because the woman wants, but does not require, a caesarean delivery are called "maternal request caesarean deliveries". The concept of requesting a caesarean delivery is relatively recent. In the United States and most Western countries, pregnant women have the right to make choices regarding treatment, including how they will deliver their child.

Recently, debate has arisen over the option of elective caesarean delivery on maternal request (CDMR). Evidence shows that it is reasonable to inform the pregnant woman requesting a caesarean delivery of the associated risks and benefits for the current and any subsequent pregnancies. The clinician’s role should be to provide the best possible evidence-based counselling to the woman and to respect her autonomy and decision-making capabilities when considering route of delivery ***(D'Alton ME et al., 2008).***

In 2006, the National Institutes of Health (NIH) convened a consensus conference to address CDMR. They resolved that the evidence supporting this concept was not conclusive ***(D'Alton ME et al., 2008).***