Carbetocin for Prevention of Postpartum Hemorrhage following Spontaneous Vaginal Delivery

A Randomized Clinical Trial

Thesis

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✍ ***Mayada Jassim Mohammed***

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LIST OF ABBREVIATIONS

ACOG.....American college of obstetrics & gynecology

ARDS	Adult respiratory distress syndrome
AVP	Argininevasopressin
CAR	Carbetocin
CNS	Central nervous system
CS	Cesarean section
CVP	Central nervous system
DIC	Disseminated intra vascular coagulation
DVT	Deep venous thrombosis
FFP	Fresh frozen plasma
GA	Gestational age
HCV	Hematocrite value
HELLP	Hemolysis, elevated liver enzymes, low platelets count
IM	Intra muscular
IV	Intra veneos
IU	International unit
Kg	Kilogram
MAPK	Mitogen-activated protein kinase
MRI	Magnetic resonance imaging
NO	Number

LIST OF ABBREVIATIONS (CONT.)

NSAID	Non steroidal anti-inflammatory drugs
OTR	Oxytocin receptors
OXY	Oxytocin
PG	Prostaglandin
PPH	Postpartum hemorrhage
PRBC	Packed red blood cells
RBC	Red blood cells
RCOG	Royal college of obstetrics & gynecology
SD	Standard deviation
TEM	Temperature
USAID	United state agency for health development
USS	Ultrasonography
WHO	World health organization

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INTRODUCTION

Postpartum hemorrhage (PPH) is a serious obstetric complication that threatens patient life. It is still one of the leading causes of maternal mortality and morbidity ***(Lewis, 2004).***

It is defined as the loss of more than 500 mL of blood after vaginal delivery and the loss of 1000 mL or more after Cesarean section ***(ACOG Practice Bulletin: Clinical Management Guidelines for Obstetrician-Gynecologists, 2006).***

Although diagnosis of PPH is based primarily on clinical judgment, it seems reasonable to define PPH as a bleeding to a degree that produces signs & symptoms of haemodynamic instability ***(Larry et al., 1994).***

Sometimes it is defined clinically as excessive bleeding that develop symptoms (pallor, weakness, palpitation, restlessness, confusion, air hunger) and signs (hypotension, tachycardia, oliguria). Sometimes no bleeding is clear to be seen, specially, in caesarean section or broad ligament hematoma ***(Jacobs, 2012).***

Another classic definition of PPH is a 10% decline in postpartum hemoglobin concentration from antepartum level; this is not clinically useful because rapid blood loss may trigger a medical emergency prior to observation of a fall in hemoglobin concentration.

American College of Obstetrics & Gynecology defines PPH as "either" 10% change in hematocrit between admission and postpartum period "or" need for erythrocyte transfusion ***(Acog, 1998).***

It is still a problem all over the world that cause a lot of morbidities including acute renal failure, necrosis of anterior pituitary gland and other organ system injury such as pancreatitis and adult respiratory distress syndrome (ARDS) ***(Villar et al.,2004).***

There are known risk factors for PPH which may include maternal obesity and a large baby in addition to well known factors such as antepartum hemorrhage, multiple pregnancies, prolonged labor, maternal age and multiparty ***(Bonner, 2000).***

Early diagnosis and management of risk factors greatly decrease its incidence; uterine atony is the most common cause of primary postpartum hemorrhage ***(Lewis, 2007).***

Management of PPH includes resuscitation of the patient and replacement of blood loss, exploration of the genital tract to exclude traumatic cause, stimulate the uterus to contract by manual removal of any retained product and using uterotonics like oxytocin, misoprostol and methergine ***(Combs et al., 2002).***

Administration of uterotonic drugs immediately after delivery of the newborn is one of the most important interventions

used in the active management of the third stage of labor ***(Elbourne et al., 2001).***

Moreover most uterotonics must be administered by injection, which requires sterile equipment and training for safe administration, these drugs must be refrigerated to remain effective ***(Cohen, 1991).***

In this study, we deal with uterotonic agent by making a comparison between the current and usually used oxytocin and the new generation of it, carbetocine.

Oxytocin is the most commonly used uterotonic drug. It is very effective in reducing the mean blood loss, postpartum haemorrhage and prolonged third-stage of labour ***(Elbourne et al., 2001).***

Carbetocine is a generation of the oxytocine that was first described in 1987.

It is a well tolerated drug and safety profile is similar to that of oxytocine ***(Leung, 2006)*** (randomized clinical trial).

AIM OF THE WORK

The aim of this study is to compare between IV oxytocin and IV carbetocine in prevention of postpartum hemorrhage after vaginal delivery as regard efficacy and safety of the drugs.

THE THIRD STAGE OF LABOR

Definition:

The third stage of labor is defined as the time between the delivery of the baby and delivery of the placenta. Separation of the placenta from the uterine wall results from a combination of capillary hemorrhage and uterine muscle contraction. The length of the third stage of labor, and its subsequent complications, time it takes for placental separation and the ability of the uterine muscle to contract.

The third stage of labor begins immediately after delivery of the fetus and involves the separation and expulsion of the placenta and membranes ***(Cunningham et al., 2005).***

This normally takes between 5 and 10 minutes. If longer than 30 minutes, it should be regarded as prolonged.

Separation of the placenta occurs because of the reduction of volume of the uterus due to uterine contraction and the retraction (shortening) of the lattice-like arrangement of the myometrial muscle fibers ***(Baker, 2006).***

***Prendiville et al. (2005*)** defined the third stage of labor refers to the period following the completed delivery of the newborn until the completed delivery of the placenta. The third stage of labor is potentially the most dangerous part for the mother, and active management is necessary in high risk patient.