

*Research Article***WHO Protocol versus carbitocin versus misoprostol in prevention of PPH (post partum hemorrhage) in elective C.S patients**

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Abstract

This study was done at Matay general hospital and El Minia university hospital and include 90 patients of low risk for PPH and did elective C.S. patients were divided into THREE groups each group 30 patient (group A receive oxytocin by dose 20 IU, group B receive carbitocin by dose 100 microgram, group C receive misoprostol by dose 800 microgram) to compare efficacy and affiance and incidence of side effects in three groups and according to results of this study amount of blood loss was less in carbitocin group than oxytocin and misoprostol and also side effects was less in carbitocin group.

Keywords: carbitocin, misoprostol, post partum hemorrhage

Introduction

Postpartum hemorrhage is leading cause of death worldwide, with an estimated mortality rate of 140,000 per year, or one maternal death every 4 minute. PPH occurs in 5% of all deliveries and is responsible for major part of maternal mortality⁽¹⁾

The majority of this deaths occurs within 4 hours of delivery, which indicate that they are a consequence of third stage of labour⁽²⁾

Nonfatal PPH results in further intervention, iron deficiency anemia, pituitary infarction (Sheehan's syndrome) with associated poor lactation, exposure to blood products, coagulopathy, and organ damage with associated hypotension, and shock⁽³⁾.

Even with appropriate management, approximately 3% of vaginal deliveries will result in severe postpartum hemorrhage it is the most common maternal morbidity in developed countries and major cause of death world wide⁽⁴⁾

Primary post partum hemorrhage resulting from uterine atony is major cause of maternal morbidity and mortality. various prophylactic strategies have been used to prevent this potential life threatening emergency. Systemic 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 hemorrhage compared with that expectant management⁽⁵⁾

Aim of the work

The primary aim of this study is to evaluate the efficacy of carbitocin when be administered in dosage (100Mg) and via IV route of administration in prophylaxis against atonic postpartum hemorrhage in low risk cases during elective CS versus WHO protocol (oxytocin in the dosage of 20 IU via IV route of administration) versus misoprostol in the dosage of 800mg via rectal route of administration just after induction of anesthesia.

The secondary aim is to evaluate the safety profile (common side-effects) of these drugs when used in prevention of atonic postpartum hemorrhage in low risk cases during elective CS

Patients and Methods

This study was conducted prospectively in labor ward of the department of obstetrics & gynecology of Matay general hospital and EL Minia university hospital during period August 2017. To August 2018 and my study include 90 patients who were low risk for developing post partum hemorrhage.

Ethics:

The study protocol was approved by the clinical research ethics committee of faculty of medicine EL Minia university.

Recruitment and consent

Signed informed consent was obtained from all women included at the point of recruitment to the study [at ante natal clinic].

Inclusion criteria:

Women with pregnancy beyond 37 weeks and less than 42 weeks gestation were and with no risk factor for postpartum hemorrhage

Exclusion criteria:**1- women with any risk factor for post partum hemorrhage as**

- 1- Over distended uterus as in multiple pregnancy, poly hydro minus macrosomia
- 2- Hypertensive disorder
- 3- Previous history of postpartum hemorrhage
- 4- Placenta previa
- 5- Abruptio placenta
- 6- ANEMIA Hb <10 g \dl
- 7- Obesity [BMI 35]
- 8- Prolonged labor >12h
- 9- Grand multipara [p>5]

Results

Table 1: Demographic data and patient characteristics among the study groups

		Group I Oxytocin N=30	Group II Carbetocin N=30	Group III Misoprostol N=30	P value		
Age	<i>Range</i>	(19-38)	(19-38)	(19-33)	0.514		
	<i>Mean± SD</i>	26.9±6.4	27.1±6.3	25.5±4.4	<i>I vs II</i>	<i>I vs III</i>	<i>II vs III</i>
					0.993	0.615	0.545
Parity	<i>Range</i>	(0-4)	(0-4)	(0-3)	0.351		
	<i>Mean± SD</i>	2±1.1	2.1±1.3	1.7±0.8	<i>I vs II</i>	<i>I vs III</i>	<i>II vs III</i>
	<i>Median</i>	2	2	2	0.801	0.210	0.214
CS	<i>Range</i>	(0-3)	(0-3)	(0-3)	0.271		
	<i>Mean± SD</i>	1.5±1.1	1.6±1.2	1.2±0.9	<i>I vs II</i>	<i>I vs III</i>	<i>II vs III</i>
	<i>Median</i>	2	2	1	0.696	0.219	0.134
Gestational age	<i>Range</i>	(38-39)	(38-39)	(38-40)	0.595		
	<i>Mean± SD</i>	38.4±0.5	38.4±0.5	38.5±0.6	<i>I vs II</i>	<i>I vs III</i>	<i>II vs III</i>
					0.967	0.590	0.742

This table shows that there was no statistically significant difference in comparing the three groups as regards maternal age, gestational age in weeks, parity, and CS delivery in previous pregnancies

Discussion

The third stage of labour is considered a normal physiologic period laden with possibilities of compromise, the most common being postpartum hemorrhage (PPH). Postpartum hemorrhage is currently at a worldwide prevalence rate of 6% to 10% and is the leading cause of maternal morbidity and mortality. More than half of postpartum deaths due to PPH are within 4 hours of delivery⁽⁶⁾.

Uterine atony is the leading cause of PPH, observed alone in 50% to 60% of cases⁽⁶⁾

Considering the physical and emotional costs of postpartum hemorrhage (PPH) worldwide, it is not surprising that institutions as the World Health Organization, the International Confederation of Midwives (ICM) and the International Federation of Gynecology and Obstetrics

(FIGO) all recommend active the active management of the third stage of labor (AMTSL) even for patients with low risk for PPH⁽⁷⁾

The World Health Organization statistics 2015, estimate that about 99% of maternal deaths occur in developing countries & with more than half of these deaths occur in sub-Saharan Africa and almost one third in south Asia. Very small proportion about 1% of maternal deaths occur in developed countries. There are large disparities between countries, but also within countries, maternal deaths are more in low income and rural area than high income and urban area about 25% of maternal deaths are due to PPH according to WHO statistics 2015, maternal mortality ratio in developing countries in 2013 is 239 per 100,000 live births versus 12 per 100,000 live births in developed countries according to WHO statistics 2015.⁽⁸⁾

About 830 women die from pregnancy or childbirth related complication around the world every day 0.52% of maternal deaths are attributed to three leading preventable causes – hemorrhage, sepsis and hypertensive complication about 25% of maternal deaths are due to PPH. incidence of PPH 2%-4% after vaginal delivery and 6% after cesarean section, with uterine atony being the cause in about 50% of cases every year about 14 million women around the world suffer from PPH according to⁽⁹⁾

The maternal mortality rate (maternal death per 100,000 live births). In Egypt 2013 reported equal to 33/100000 in 2015⁽¹⁰⁾

The rate of PPH increased from 1.5% in 1999 to 4.1% in 2009, and the rate of atonic PPH rose from 1% in 1999 to 3.4% in 2009. The risk of total PPH with a morbidly adherent placenta was markedly higher⁽¹¹⁾.

Active management of the third stage of labour lowers maternal blood loss and reduces the risk of PPH. Prophylactic oxytocics should be offered routinely in the management of the third stage of labour in all women as they reduce the risk of PPH by about 60%⁽¹²⁾.

Conclusion

It could be concluded that, carbetocin spares the use of additional uterotonics, interventional procedures & blood transfusion with minimal

side-effects and these results establish carbetocin is better than oxytocin and misoprostol in prevention of PPH (in low risk cases during elective CS), and also oxytocin is better than misoprostol in prevention of PPH (in low risk cases during elective CS) and decrease amount of blood loss with minimal side effects than misoprostol.

Carbetocin has the safety and efficacy of oxytocin but with unique injection not requiring repeated injection or perfusion for hours in addition thanks to its more potent and long lasting uterotonic action it has the potential to be the drug of choice in preventing postpartum atony

Finally according to this study carbetocin is better than oxytocin than misoprostol in prevention of post partum hemorrhage in low risk cases during elective CS as regarding drug safety and efficacy and also carbetocin spare use of additional uterotonics & blood transfusion.

But also carbetocin not available all times and more expensive than oxytocin than misoprostol.

Oxytocin is better than misoprostol in preventing PPH in low risk cases during elective CS as regarding drug safety and efficacy with minimal side-effects, and also in decreasing amount of blood loss.

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