International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Index Copernicus Value (2016): 79.57 | Impact Factor (2017): 7.296

Carboprost Versus Oxytocin in Active Management of Third Stage of Labour

Dr. Vishwa Tuvar[1], Dr. Kahan Chavda[2], Dr. D. A. Chavda[3]

[1]Obstetrician and Gynaecologist, Vishwa Hospital, Vyara, India

[2]2nd Year OB&GY Resident, Sharda Hospital, Surat, India

[3]Obstetrician and Gynaecologist, Kahan Hospital, Bhavnagar, India

Abstract: ***Background: Postpartum haemorrhage is the single largest and leading cause of maternal morbidity and mortality not only in developing countries but also in developed countries. The present study is an attempt to evaluate the scope of using prophylactic intramuscular carboprost tromethamine 125mcg in comparison with intramuscular oxytocin 10 units for the active management of third stage of labor. Material and Method: 100 Pregnant women at term with spontaneous onset of labor were included in the study and were randomly divided into 2 groups of 50 women each. Group A and Group B were given injection Oxytocin 10 units and injection Carboprost tromethamine 125mcg intramuscularly, respectively at the time of delivery of anterior shoulder. The main outcome measures with respect to third stage of labor were: duration, blood loss by volume, difference in hemoglobin, need for additional oxytocics and side effects. Result: Subjects who received carboprost tromethamine 125mcg showed a significant reduction in duration of third stage of labor and blood loss when compared to subjects who received oxytocin 10 units. Additional need for Uterotonics after carboprost was significantly less compared to oxytocin. Conclusion: Intramuscular carboprost 125mcg is a better cost effective alternative as compared to 10 units intramuscular oxytocin in active management of third stage of labor.***

Keywords: Active management of third stage of labor, third stage of labor, carboprost , oxytocin, post partum haemorrhage.

1. Introduction

Post partum haemorrhage is one of the leading cause of maternal death worldwide; it occurs in about 10.5% of births and accounts for over 13000 maternal deaths annually [1].

Third stage of labour is the most crucial stage which begins from full delivery of fetus and ends with full delivery of placenta and membranes. Its average duration is 15 min in both primigravida and multigravida when the labour is not actively managed. [2].

Routine active management of third stage of labour could play an important role in reducing maternal mortality and morbidity due to PPH in modern obstetrics. Active management of third stage of labour is implemented as a "package" including early uterotonic therapy with the 1. delivery of the anterior shoulder, 2. early cord clamping and placental delivery by controlled cord traction following signs of placental separation 3. massaging the uterus.[3].

Drugs conventionally used for prophylaxis against PPH includes oxytocin, methylergometrine and 15-methyl PGF_2a (carboprost), misoprostol and syntometrine (combination of ergometrine and oxytocin) [4].

Prophylactic use of uterotonics after delivery of infant has been shown to reduce the incidence of PPH by 40%. But it is associated with side effects ranging from nausea, vomiting and hypertension to rarely, postpartum eclampsia, intracerebral haemorrhage, myocardial infarction, cardiac arrest and pulmonary edema. [5]

Carboprost tromethamine is a PGF2a analogue. It is given as a single intramuscular injection of 125mcg which reduces the side effects like nausea, vomiting and diarrhoea compared to its therapeutic dose i.e. 230 mcg. . It is free from side effects such as hypertension and pulmonary edema compared to methargin.[6].

2. Aims & Objective

Aim

To evaluate the efficacy of intramuscular carboprost tromethamine (125 mcg) in comparison to intramuscular oxytocin 10 units in prophylaxis of post partum haemorrhage.

Objective

1) To compare duration of third stage
2) To compare the amount of blood loss in 3rd stage
3) To evaluate the side effects.

3. Materials and Methods

Study Design: prospective interventional study
Target population: All pregnant women in labour at term.
Sample size:100 women in labour selected after taking into consideration selection criteria

Selection Criteria

Inclusion criteria

- All consecutive women in labor having Full term singleton pregnancy with vertex presentation who are willing to participate.

Exclusion criteria

- Haemoglobin less than 10 g/dl
- Pregnancy induced hypertension
- Malpresentation

Licensed Under Creative Commons Attribution CC BY

- Coagulation abnormalities
- Intra uterine death
- Diabetes
- Heart disease
- Epilepsy
- Asthma
- preterm labor
- caeserian section

Patients were divided into two groups (A and B) by computer generated random numbers after taking informed and written consent. Group A and Group B were given injection oxytocin 10 units and injection carboprost tromethamine 125mcg intramuscularly respectively immediately after delivery of baby. The main outcomes which were measured with respect to third stage of labor were

Duration of third stage of labour, blood loss in milliliter, difference in haemoglobin(before and after delivery)
Need for additional oxytocics and Side effects.

Blood loss was measured by Gravimetric method [7]. This was calculated by weighing materials such as soaked sponges on a scale and subtracting the known dry weights of these materials to determine the blood loss.

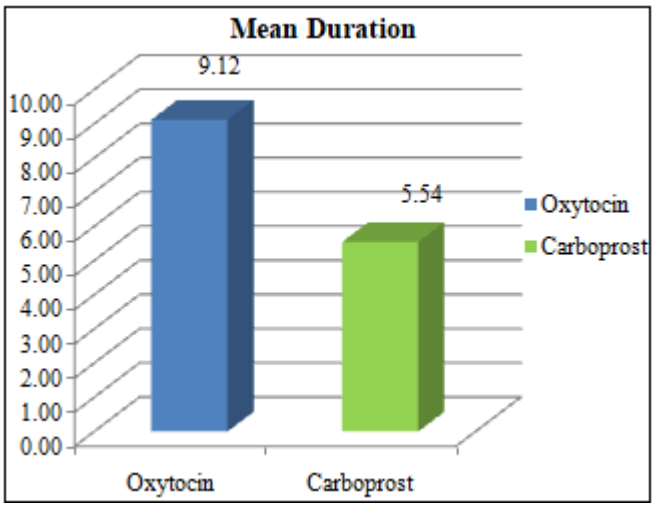
Wet weight (gm)-dry weight(gm) = blood loss in ml

4. Results

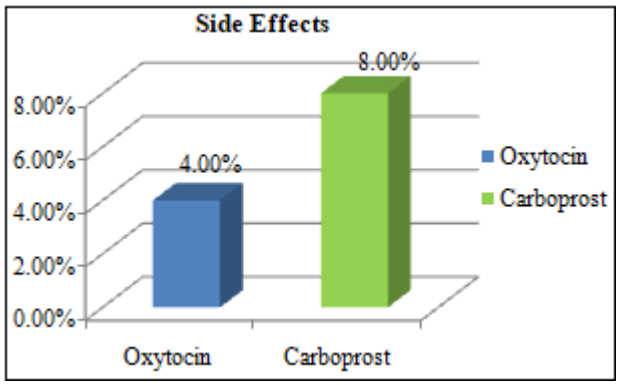
Comparison of oxytocin and carboprost outcome in third stage of labour

Parameter	Oxytocin	SD	Carboprost	SD	P value
Mean dur.of 3rd stage	9.12	1.34	5.54	1.27	0.0001
Blood loss (ml)	249.20	33.6	204.00	30.4	0.0001
Pre delivery Hb baseline	10.79	0.73	11.06	0.82	0.0810
Post delivery Hb	10.14	0.75	10.60	0.81	0.0030
difference	0.86	0.35	0.46	0.13	0.0001

Mean duration of third stage of labour in oxytocin was 9.12 min and that of carboprost was 5.54 min.



Need for additional uterotonics



Only 2 patients who received Oxytocin had nausea and vomiting and 4 patients who received carboprost had diarrhea.

5. Discussion

1) The results of this study demonstrated that intramuscular carboprost tromethamine 125 mcg was more effective in reducing the duration of third stage of labor.(5.54 vs. 9.12 mins)
2) Oxytocin as recommended by WHO is the most commonly used uterotonic. Various studies have shown that there is no need for additional uterotonics if there is routine prophylactic use of oxytocin .(7,8). However my study showed the need of 28% extra uterotonic usage in oxytocin group whereas those who received carboprost did not required any uterotonics. The need for additional use of uterotonic along with primary drug indicates the risk of post partum hemorrhage inspite of administration of the primary drug for its prevention.
3) The mean blood loss in third stage was 249.20 ml in oxytocin and 204 ml in carboprost which was statistically significant.(p=0.001)
4) Carboprost tromethamine is a powerful uterotonic agent with a physiological role in human parturition both in delivery of fetus and control of post partum bleeding.
5) Post delivery haemoglobin was slightly reduced in both the groups. The mean difference in haemoglobin was 0.86gm/dl and 0.46gm/dl in oxytocin and carboprost group respectively.
   - No women required blood transfusion.
   - No women had pph
   - 2 women in oxytocin group had side effects and 4 women in carboprost had diarrhea.

6. Conclusion

Our study emphasizes that carboprost 125 mcg is a better and more effective in minimizing blood loss, duration of 3rd stage without the use of additional uterotonics compared to oxytocin

References

[1] AbouZahr c. Global burden of maternal death and disability ,In: Rodeck c, ed. Reducing maternal death and disability in pregnancy. Oxford: Oxford University Press;2003,pp.1-11.

Licensed Under Creative Commons Attribution CC BY

[2] Carroli G, Cuesta C,Abalos E, et al. Epidemiology of post partum haemorrhage: a systemic review. Best Pract Res Clin Obstet Gynaecol.2008; 22:999-1012.
[3] Cunningham FG,Gant NF,Lenovo KJ et al (eds). William obstetrics 21st edition.USA, McGraw Hill.2001:619-70.
[4] Leduc D, Senikas V,Lalonde AB, et al.Active management of third stage of labor: prevention and treatment of post partum haemorrhage.J Obstet Gynaecol Can.2009;31:980-93.
[5] Hofmeyer GJ, Gulmezoglu AM. New development in the management of post partum haemorrhage. In: Bonner J. Recent Advances in obstetrics and Gynaecology. 21st edn. London. Churchill. Livingstone.2000:56-66.
[6] Shah D, Divakar H,Meghal T. combating post partum haemorrhage in India: moving forward. In: Christopher B-L,Louis GK, Andre BL, Mahantesh K, editors.A textbook of post p[artum haemorrhage,a comprehensive guide to evaluate,management and surgical evaluation.1st ed. UK:Sapiens Publishing;2006.p.434-41.
[7] Buchman MI. Blood loss during gynaecological operations. Am J Obstet Gynecol 1953; 65:53-6414.
[8] M. Raghavan and P.E Marlik, "Anemia, allogenic blood transfusion, and immunomodulation in the critically ill," Chest,vol. 127,no. 1,pp. 295-307, 2005

Licensed Under Creative Commons Attribution CC BY