American Journal of Oral Medicine and Radiology

ISSN - 2394-7721

www.mcmed.us/journal/ajomr

Research Article

STUDY COMPARING THE SAFETY AND EFFICACY OF OXYTOCIN AND ERGOTAMINE IN OBSTETRICS AND GYNECOLOGY

Sharmila K[1*] and Shalini S[2]

[1]Assistant Professor, Department of Obstetrics & Gynaecology, RVS Institute of Medical Sciences, RVS Nagar, Tirupathi Road, Chittoor, Andhra Pradesh 517127, India.
[2]Assistant Professor, Department of Community Medicine, RVS Institute of Medical Sciences, RVS Nagar, Tirupathi Road, Chittoor, Andhra Pradesh 517127, India.

ABSTRACT

Aim and Objectives: To study the safety and efficacy of oxytocics like oxytocin and methyl ergotamine in maternal women in all stages of labour and also to compare the rate and extent of side effects respective t drug used. The main objective of the study was to compare most popularly used uterotonics in obstetrics and gynecology. For learning the safety and efficacy with the main use of methyl ergotamine and oxytocin for induction of labour, along with prevention of PPH in all the groups of patients. Methods and Materials: The preset study was carried out in private and government multi-specialty and tertiary care hospitals in and around Chennai and Chittoor, India, for a period of around 6 months during the academic year of 2017 and 2018. Permission for the study was brought from institutional ethics committee (IEC) and review board members, especially for the departments of obstetrics and gynecology. Women with low-risk or no-risk pregnancy, primiparous or multiparous women with no previous history of surgical delivery and no complications during past deliveries, singleton gestations, age of pregnant women ≥ 36 weeks (equivalent to less than or equals 3 weeks)Result: The duration of labour was also calculated in both the groups ad the mean time for delivery was found to be less than 7 minutes in both the groups. About 32% of oxytocin group have accounted for 12 minutes of mean delivery time, whereas, it was 21% in women of methyl ergotamine group. The p value was observed to be > .07 and was significant when between the two groups. 200ml of blood loss was observed in large number of people but in same number in both the groups, and women reported with more than or equal to 500ml of blood loss after labor were also of same number approximately in both the groups. Discussion: As high commonness of blood loss with PPH as been reported with use of low doses of oxytocin, in the present study the dose of oxytocin was taken from 5 IU to 10 IU for estimating the earl outcomes and safety of oxytocin. In admiration of mean age, the study groups were highly comparable. About all the cases of oxytocin and ergotamine, have accounted with duration of delivery with less than 6 minutes in the 3rd stage of labour. Members accounted with 10minutes of duration of labor was seen in 35% of oxytocin group and 20% of methyl ergotamine groups respectively. No significant difference was found statistically in both the groups when compared for the need of episiotomy in both the groups and the length of 3rd stage of labour. Conclusion: Thus, from the above discussion, it is concluded that, both ergotamine and oxytocin are equal efficacy and safety in management of blood loss with PPH. But, the side effects like leg cramps, chest pain, vomiting was significantly more in group treated with methyl ergotamine than in group treated with oxytocin, showing that oxytocin has more safety profiles when compared to methyl ergotamie in obstetrics and gynecology. There was no significant changes between both the groups in regard with management of length of labor, fall in Hb levels, blood loss. The cases of retention of placenta was also almost the same in both the cases.

Key words:- Obstetrics and Gynecology. Oxytocin, Ergotamine.

Access this article online	
Home page: http://www.mcmed.us/journal/ajomr DOI: http://dx.doi.org/10.21276/ajomr.2018.5.2.2	**Quick Response code**

Received:25.07.18	**Revised**:12.08.18	**Accepted**:15.09.18

Corresponding Author **Sharmila K** Email: - sharmilanirmal2502@gmail.com

INTRODUCTION

Besides all stages of life, lots of physiology and biological changes occurs within a short period of time only during pregnancy(1). In regard with hormones like progesterone and estrogen changes occur in their levels in the blood stream especially during pregnancy in women(2). There are many complications during labour in obstetrics and gynecology, however, postpartum hemorrhage (PPH) is the major complication which leads to morbidity or mortality of women(3). Though PPH is utterly preventable condition, it is sometimes more serious(4). It is estimated from different data that approximately 7% of vaginal deliveries result in PPH resulting in about 29% of maternal child birth related deaths all over the world(5). If the women is presented with anemia, the chances for PPH is aggrevated resulting in serious clinical conditions(6). In developing countries where it is known that women are presented with anemia to large extent, it is difficult to estimate the rates of PPH(7). Thus, in the present study, efforts are brought to study the safety and efficacy of oxytocin and ergotamine in comparison with each other(8). Both the oxytocin and methyl ergotamine are oxytocics and used for prevention and management of PPH(9). The level of PPH varies with stages of labour, thus, the use of these oxytocics is also compared for their efficacy in various stages of labour(10). The study was carried out in the government and private multi specialty hospitals in and around Chennai and chittoor with a study population of about 400 pregnant women(11). PPH (post partum hemorrhage) is also considered as a night mare for pregnant women since centuries, especially in developing countries like India, were about 25-43% of maternal deaths are reported(12). Among all types of PPH, atonic PPH is the major cause of maternal deaths all over the world(13). Active management during all stages of labour is the only way that has proven for managing Atonic PPH in obstetrics and gynecology(14).

Aim:

To study the safety and efficacy of oxytocics like oxytocin and methyl ergotamine in maternal women in all stages of labour and also to compare the rate and extent of side effects respective t drug used.

Objectives:

- ✓ The main objective of the study was to compare most popularly used uterotonics in obstetrics and gynecology.
- ✓ For learning the safety and efficacy with the main use of methyl ergotamine and oxytocin for induction of labour, along with prevention of PPH in all the groups of patients.

METHODS AND MATERIALS:

The preset study was carried out in private and government multi-specialty and tertiary care hospitals in and around Chennai and Chittoor, India, for a period of around 6 months during the academic year of 2017 and 2018. Permission for the study was brought from institutional ethics committee (IEC) and review board members, especially for the departments of obstetrics and gynecology.

Inclusion criteria:

Women with low-risk or no-risk pregnancy, primiparous or multiparous women with no previous history of surgical delivery and no complications during past deliveries, singleton gestations, age of pregnant women $\geq$ 36 weeks (equivalent to less than or equals 3 weeks)(15).

Exclusion criteria:

Women with high-risk of pregnancy, women diagnosed with dizygotic or monozygotic twins in the womb, as the accurate loss of blood to occur cannot be estimated, and women with gestational diabetes, previous history of coronary artery diseases, history of previous surgical deliveries, scattered uterus, manual removal of placenta, have not been included in the study.

Method:

The study group was divided into two, one group were treated with oxytocin and the other group were treated with methyl ergotamine, the outcomes of both the groups have been statistically noted down and calculated. The group I which consisted of 200 women were administered with 10 IU of oxytocin mixed with 500ml of Ringer's lactate solution in the form if bolus infusion, and given immediately after the delivery of baby(16). 0.2mg of methyl ergotamine was given in i.v route immediately after delivery to women included under group II, which included 200 women. The need for any additional amounts of uterotonics was estimated by testing the completeness of placeta, and the total amount of blood loss is calculated by breaking down the clots and cleaning the whole vagina and cervix for the clots, and the women were observed for PPH for a while movement.

RESULT:

The duration of labour was also calculated in both the groups ad the mean time for delivery was found to be less than 7 minutes in both the groups. About 32% of oxytocin group have accounted for 12 minutes of mean delivery time, whereas, it was 21% in women of methyl ergotamine group. The p value was observed to be > .07 and was significant when between the two groups. 200ml of blood loss was observed in large number of people but in same number in both the groups, and women reported with more than or equal to

500ml of blood loss after labor were also of same number approximately in both the groups.

In both the groups the number of cases presented with PPH and retained placenta were almost the same. But, the fluctuation in systolic blood pleasure has shown significant difference in both the groups. While the systolic blood pressure has decreased in oxytocin group after 1hour, it was raised in methyl ergotamine group. Similarly at the end of 4th hour of administration of successive drugs, the systolic blood pressure has remained raised in methyl ergotamine group whereas, it was decreased in decreased in oxytocin group.

Increase in mean pulse rate was similar in both the groups. While coming to diastolic blood pressure, it was raised after 1our of delivery in patients treated with methyl ergotamine and remained same in oxytocin group, whereas, the decrease in diastolic blood pressure was seen in oxytocin group and in methyl ergotamine group, it remained the same.

The side effects like leg cramps, chest pain, vomiting was seen in both the groups, but, it was more in group II who were treated with methyl ergotamine. Any need for blood transfusion required s also estimated and it was of nil-significant when statistically compared. The side effects like leg cramps, chest pain, vomiting was seen in both the groups, but, it was more in group II who were treated with methyl ergotamine. Any need for blood transfusion required s also estimated and it was of nil-significant when statistically compared.

Table 1: Comparison of mean blood loss between both groups (ml)

Groups	Mean blood loss	SD	Mean (log transformed)	SD (log transformed)	t	df	P
Ergometrine	194.74	152.54	6.0	0.68	1.546	389	0.13
Oxytocin	212.8	76.48	5.41	0.54			2

Table 2: Comparison of systolic blood pressure in both the groups (mm of Hg) (before delivery and 1 hr after delivery)

Time interval	Ergometrine group		Oxytocin group		Z value	p value
	Mean	±SD	Mean	±SD		
Before delivery	123.51	7.5	131.4	6.93	0.579	0.573
1 hr after delivery	135.5	6.67	123.4	5.72	12.475	0.000
4 hr after delivery	127.70	6.75	132.2	4.36	11.42	0.000

Table 3:Comparison of systolic blood pressure in both the groups (mm of Hg) (before delivery and 4 hr after delivery)

Time interval	Ergometrine group		Oxytocin group		Z value	p value
	Mean	±SD	Mean	±SD		
Before delivery	89.87	2.86	81.9	3.13	0.075	0.841
1 hr after delivery	92.0	3.32	78.9	4.93	8.92	0.001
4 hr after delivery	86.8	5.2	77.3	4.36	13.57	0.001

Table 4: Side effects in both groups

Side effects	Ergometrine group (n=200)	Oxytocin group (n=200)
vomiting	62	5
Leg cramp	26	**3**
Chest pain	11	7

DISCUSSION

As high commonness of blood loss with PPH as been reported with use of low doses of oxytocin, in the present study the dose of oxytocin was taken from 5 IU to 10 IU for estimating the earl outcomes and safety of oxytocin. In admiration of mean age, the study groups were highly comparable. About all the cases of oxytocin and ergotamine, have accounted with duration of delivery with less than 6 minutes in the 3rd stage of labour. Members accounted with 10minutes of duration of labor was seen in 35% of oxytocin group and 20% of methyl ergotamine groups respectively. No significant difference was found statistically in both the groups when compared for the need of episiotomy in both the groups and the length of 3rd stage of labour. About 16 members in each group showed indication for additional use of oxytocics, thus, there was no statistical significance in both the cases. The side effects like retained placenta, was approximately more in group treated with methyl ergotamine in some research trails conducted in western countries, but, in the present study no such results have been seen and reported.

CONCLUSION

Thus, from the above discussion, it is concluded that, both ergotamine and oxytocin are equal efficacy and safety in management of blood loss with PPH. But, the side effects like leg cramps, chest pain, vomiting was significantly more in group treated with methyl ergotamine than in group treated with oxytocin, showing that oxytocin has more safety profiles when compared to methyl ergotamie in obstetrics and gynecology. There was no significant changes between both the groups in regard with management of length of labor, fall in Hb levels, blood loss. The cases of retention of placenta was also almost the same in both the cases. As oxytocin showed less side effects when compared to methyl ergotamine, oxytocin is the better choice of drug during management of PPH in obstetrics and gynecology. Thus, 1st preferred drug of choice is oxytocin.

REFERENCES

1. Fuchs AR, Fuchs F. (1984) Endocrinology of human parturition. Br J ObstetGynaecol 471-528.
2. AbouZahr C, Wardlaw T. (2000) Maternal mortality in Estimates developed by WHO, UNICEF and UNFPA.
3. Naz H, Sarwar I, Fawad A, Nisa A; (2008) Maternal Morbidity And Mortality Due To Primary Pphexperience At Ayub Teaching Hospital Abbotabad. 59-65.
4. Rai RK, Upadhyay A, Shekhar C, Ojha P, Singh VP; (2012) Socio-economic Status. Water Science and Technology Library.173-210.
5. Graham, Wendy, William B. and Robert. Snow.W (1989) Estimating maternal mortality: The sisterhood method. 125-135
6. Prendiville WJ, Elbourne D. McDonald S; (2000) Active versus expectant management in the third stage of labour. Cochrane Database Systematic Review,
7. Nieminen U, Jarvinen PA; (1963) A comparative study of different medical treatments of the third stage of labour. 424–429.
8. Docherty PW, Hooper M; (1981) Choice of an oxytocic agent for routine use at delivery.
9. Mitchell G, Elbourne DE, Ashurst HA et al. (1993). TheSalford third stage trial: oxytocin plus ergometrine versus oxytocin alone in the active management of the third stage of labour.
10. Dumoulin JG; (1981) A reappraisal of the use of ergometrine. 178– 181.
11. Choy CMY, Lau WC, Tam WH, Yuen PM; (2002) A randomised controlled trial of intramuscular syntometrine and intravenous oxytocin in the management of the third stage of labour. 173–177.
12. McDonald SJ, Prendiville WJ, Blair E; (1993) Randomised controlled trial of oxytocin alone versus oxytocin and ergometrine in active management of the third stage of labour. 1167–1171.
13. Khan GQ, John IS, Chan T, Wani S, Hughes, Stirrat GM; (1995) Abu Dhabi third stage trial: oxytocin versus syntometrine in the active management of the third stage of labour. 147– 151.
14. Yuen PM, Chan NST, Yim SF, Chang AMZ; (1995) A randomised double blind comparison of syntometrine and Syntocinon in the management of the third stage of labour. 377–380.
15. Ng PS, Chan ASM, Sin WK, Tang LCH, Cheung KB, Yuen PM; (2001) Amulticentrerandomised controlled trial of oral misoprostol and imsyntometrine in the management of the third stage of labour. 31–35.
16. El-Refaey H, Nooh R, O'Brien P, et al. The misoprostol third stage of labor study: a randomized controlled comparison between orally administered misoprostol and standard management. BJOG. 2000;107(9):1104–10.

Cite this article:
Sharmila K, Shalini S. Study comparing the safety and efficacy of oxytocin and ergotamine in obstetrics and gynecology. *American Journal of Oral Medicine and Radiology,* 5(2), 2018, 26-29.
DOI: http://dx.doi.org/10.21276/ajomr.2018.5.2.2