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THE EFFECT OF OXYTOCIN PLUS MISOPROSTOL VERSUS OXYTOCIN OR MISOPROSTOL ALONE IN REDUCING BLOOD LOSS AT CAESAREAN SECTION

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ABSTRACT

Introduction: PPH is defined as blood loss of > 500 ml after vaginal delivery or a loss > 1000 ml after caesarean delivery and > 1500 ml after caesarean hysterectomy.3Majority of maternal deaths about 50-70% occur in postpartum period of which 45% death occurs in first 24 hrs of hospital admission, 34.14% dying within 6 hrs of delivery and 22% death occurs within a hour of admission due to PPH. Three main groups of oxytocic drugs play an important role in management of atonic PPH. They are Oxytocin ,Ergot Alkaloids, Prostaglandins .

Material and Methods: This is longitudinal type of observational study is conducted in the Department of Obstetrics and Gynaecology at MCSG , S.M.S. medical college, Jaipur. 126 pregnant women were allocated to one of the three groups of 42 each by chit method. First was Oxytocin group (Group-A),Second Misoprostol group (Group-B), Third combined misoprostol-oxytocin group (group C)

Results: There is no significant difference in blood loss in misoprostol or oxytocin alone given in patients. There was significantly low blood loss in combined use of lower doses of oxytocin and misoprostol in compared to using higher doses of oxytocin and misoprostol alone.

Conclusions: A synergistic effect of oxytocin and misoprostol allow a reduction in dose for both agent and therefore limit the side effects while improving the efficacyin reducing blood loss in caserean section.

KEYWORDS : Post Partum Haemorrhage, Oxytocin, Misoprostol, Blood Loss, Caserean Section.

INTRODUCTION

Postpartum period is a time of relief and joy for all involved but there are potential danger links for mother during this period. Among the three stages of labor, mortality and morbidity mostly occur in the third stage of labor (As a result of PPH).[1] PPH is an important cause of maternal mortality, accounting for nearly one quarter of all maternal deaths worldwide. Atonicity is the most common cause.[2] PPH is defined as blood loss of > 500 ml after vaginal delivery or a loss > 1000 ml after caesarean delivery and > 1500 ml after caesarean hysterectomy.[3]Majority of maternal deaths about 50-70% occur in postpartum period of which 45% death occurs in first 24 hrs of hospital admission, 34.14% dying within 6 hrs of delivery and 22% death occurs within a hour of admission due to PPH.

Three main groups of oxytocic drugs play an important role in management of atonic PPH. They are Oxytocin ,Ergot Alkaloids, Prostaglandins .

Misoprostol: Misoprostol's advantages over other synthetic prostaglandin analogs are its low cost, long half life, heat stability and worldwide availability.[4] Sublingual route of misoprostol allows fast absorption of drug and more sustained therapeutic effect than oral, as it avoids first pass effect.

Oxytocin: Oxytocin is a short amino-acid polypeptide is the gold standard drug for prevention and treatment of PPH, It requires cold storage, sterile equipments and trained personale.[5]

A synergistic effect of two agents allow a reduction in dose for both agent and therefore limit the side effects while improving the efficacy. The combined use of lower dose of oxytocin and misoprostol decrease the blood loss after cesarean section with minimal side effects compared to oxytocin infusion and misoprostol alone.

AIM & OBJECTIVES

AIM: To evaluate the effect of oxytocin plus misoprostol versus oxytocin or misoprostol alone in reducing blood loss at cesarean section.

OBJECTIVES:

1. To assess the amount of blood loss during caesarean section after use of oxytocin or misoprostol alone.
2. To assess the amount of blood loss during caesarean section after use of oxytocin plus misoprostol.
3. To compare the effect of oxytocin plus misoprostol versus oxytocin or misoprostol alone in reducing blood loss during cesarean section.

MATERIALAND METHODS

This longitudinal type of observational study is conducted in the Department of Obstetrics and Gynaecology at MCSG , S.M.S. medical college, Jaipur. An informed written consent was taken from every patient after full explanation about the study procedure. The subjects for the study were selected from the labour room. 126 pregnant women who were fulfilling the criteria. Patients were randomly allocated to one of the three groups of 42 each by chit method.

The Oxytocin group (Group-A) received 20 IU infusion of oxytocin in 500cc ringer lactate solution at the rate of 500 cc per hr after delivery.

The Misoprostol group (Group-B) received 400 µg sublingual Misoprostol tablet after delivery.

The combined misoprostol-oxytocin group (group C) received 200 µg Misoprostol tab plus 10 IU infusion of oxytocin in 500cc ringer lactate at the rate of 500 cc per hr after delivery.

INCLUSION CRITERIA: All Primigravida selected for the study.

EXCLUSION CRITERIA: Pregnancies associated with Anemia ,Antepartum Hemorrhage ,Poly-Hydramanios,Pregnancy induced hypertention ,Multiple pregnancy, Bronchial asthma,Diabetes mellitus,Previous caeserian section,Fibroid uterus ,Heart disease, Liver disease, Renal disorders ,Coagulation abnormalities.

All the data collected was analyzed by epi info7. Statistical analysis was performed using chi-square test for qualitative data and student t test was used for quantitative data.

OBSERVATIONS

TABLE 1 :Distribution of Study Subjects according to blood loss

Blood loss (ml)	Group M		Group O		Group M+O		Total	
	N	%	N	%	N	%	N	%
< 200 ml	1	2.4	0	0.0	2	4.8	3	2.4
200 – 249 ml	5	11.9	6	14.3	20	47.6	31	24.6
250 – 299 ml	17	40.5	17	40.5	17	40.5	51	40.5
300 - 350 ml	19	45.2	19	45.2	3	7.1	41	32.5
Total	42	100	42	100	42	100	126	100

Chi-square = 28.101 with 6 degrees of freedom; P < 0.001

Multiple comparison	M vs O	M vs M+O	O vs M+O
P value	0.973	<0.001	<0.001

Maximum number of patient i.e. 19 (45.2 %) in group M and 19 (45.2 %) in group O were between 300-350 ml of blood loss. Only one case

in group M (2.4 %) was having < 200 ml blood loss. There was no case in group O which having < 200 ml blood loss. In group M 17 (40.5 %) cases were having blood loss between 250-299 ml and 5(11.9 %) cases were having blood loss between 200-249 ml. In group O 17 (40.5 %) cases were having blood loss between 250-299 ml and 6(14.3 %) cases were having blood loss between 200-249 ml.

- In group M+O maximum number of patient i.e. 20 (47.6 %) were belonged to 200-249 ml. and only 2 (4.8%) were belonged to < 200 ml blood loss. . In group M+ O 17 (40.5 %) cases were having blood loss between 250-299 ml and only 3(7.1 %) cases were belonged to 300-350 ml blood loss.

TABLE 2: Comparison of Mean Blood loss (ml) among the Study Groups

Group	N	Mean	Std. Deviation
Group M	42	290.8	35.16
Group O	42	291.1	34.58
Group M +O	42	250.1	28.48

P<0.001 (S)

Multiple comparison	M vs O	M vs M+O	O vs M+O
P value	0.973	<0.001	<0.001

Mean blood loss was 290.8 ± 35.16 ml in group M and 291.1 ± 34.58 ml in group O and 250.1±28.48 ml in group M+O. There is no significant difference in blood loss in misoprostol or oxytocin alone given in patients. There was less blood loss in combined use of lower doses of oxytocin and misoprostol in compared to using higher doses of oxytocin and misoprostol alone.

TABLE 3 : Side effects observed among the Study Groups

Complication	Group M	Group O	Group M +O	P value*
Nausea	5 (11.9%)	5 (11.9%)	3 (7.1%)	0.710 (NS)
Vomiting	3 (7.1%)	0 (0%)	2 (2.8%)	0.233 (NS)
Dyspnea	0 (0%)	1 (2.4%)	0 (0%)	0.365 (NS)
Shivering	6 (14.3%)	1 (2.4%)	2 (4.8%)	0.081 (NS)
Fever	7 (16.7%)	0 (0%)	0 (0%)	<0.001 (S)
Chest pain	0 (0%)	5 (11.9%)	1 (2.4%)	0.025 (S)

The above table shows the distribution of cases according to side effects occouring in all these three groups.incidence of shivering 6(14.3%) in group M and 1(2.4%) in in group O and2(4.8%) in M+O group. .incidence of pyrexia 7(16.7%) in group M . it was found to be statistically significant i.e.p<0.001. this problem resolved spontaneously without any drugs . there was 1(2.4%) case having dyspnea and were 5(11.9%) cases having chest pain in group O. incidence of nausea 5(11.9%)in group M and 5(11.9%) in group O and 3 (7.1%) in group M+O . incidence of vomiting 3 (7.1%) in group M and 2(2.8%) in M+O group. Nausea, vomiting, dyspnea, shivering, fever, chest pain were seen in a few cases in M+O group.

DISCUSSION:

There is no significant difference in blood loss in misoprostol or oxytocin alone given in patients. There was significantly low blood loss in combined use of lower doses of oxytocin and misoprostol in compared to using higher doses of oxytocin and misoprostol alone. **Pakniat H *et al* (2015)**[6] conducted similar study that the mean blood loss during surgery was significantly lower in group MO compared to other groups (P = 0.04). Similar results were reported **by Madhuri Alwani *et al*(2014)**[7]**, J Hua, *et al* (2013)**[8]**, Owonikoko KM *et al* (2011)**[9]**, Blum J, Winikoff B *et al*(2010)**[10] study.

Essam Rashad Othman *et al* (2016)[11] studied the major side effect was shivering 22.64% (77 cases out of 340) and Minor side effects were fever (1.17%), diarrhea (0.29%) and rigors (0.29%) less in rectal group 12.94% as compared to sublingual group 32.35% . The results of this study was in accordance to our study. **J Hua, et al (2013)**[8] studied the incidence of postoperative shivering/pyrexia was significantly higher in the misoprostol group, compared with the oxytocin group (RR 3.23; 95% CI 1.41–7.39).Similar results were reported by **Wilfrido Leon, Jill Durovher *et al*(2012)**[12]**, Owonikoko KM *et al* (2011)**[9]**, J Durocher, J bynum *et al*(2010)**[13]**, Vimala N1, *et al* (2006)**[14] study.

CONCLUSION

- Postpartum haemorrhage is an unpredictable and rapid cause of maternal death worldwide. Uterine atony is the most common cause of postpartum haemorrhage. It is perhaps the most amenable to prevent also. Active mangement of third stage of labour can prevent 60%of uterine atony.The key element of active management is administration of an oxytotic drugs.

- In the present study it has been demonstrated that A synergistic effect of two agents allow a reduction in dose for both agent and therefore limit the side effects while improving the efficacy.The combined use of lower dose of oxytocin(10 iu) and misoprostol(200 mcg) decrease the blood loss after cesarean section with minimal side effects compared to oxytocin infusion(20 iu) and misoprostol(400 mcg) alone.

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