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ORIGINAL ARTICLE

Comparative Efficacy of Syntometrine Versus Oxytocin in Active Management of Third Stage of Labour

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ABSTRACT

Objective: The study's objective is to examine the effectiveness of syntometrine and oxytocin in actively managing the third stage of labour in order to lower the risk of PPH and other undesirable third stage outcomes.

Study Design: Randomized/Prospective study

Place and Duration: Gynae & Obs department of Combined Military Hospital Peshawar for the duration from 1st June 2021 to 30th November 2021.

Methods: This study comprised of 140 females of third stage labour. Age of the females was 18-40 years. After getting informed written consent detailed demographics of enrolled cases were recorded. Patients were equally divided in two groups. Group I had 70 patients and received syntometrine (5 IU Synthetic Oxytocin and 0.5 mg ergometrine maleate) and in group II oxytocin was given to 70 females. Outcomes among both groups were recorded in terms of blood loss and postpartum hemorrhage. SPSS 23.0 was used to analyze all data.

Results: The mean age of the patients was 28.3±6.18 years and had mean BMI 27.6±11.25 kg/m^2. Mean gestational age was 36.11±5.19 weeks. Frequency of primigravida was 80 (57.1%). Frequency of emergency delivery was found in 85 (60.7%) cases while 55 (39.3%) females admitted to OPD. 72 (51.4%) females were from rural areas and 67 (47.8%) cases were educated. We found that mean blood loss in group II was higher 165.1±8.66 ml as compared to group I 118.7±9.39 ml with p value <0.005. There was no any PPH found in group I while in group II PPH found in 3 (4.3%) cases. Frequency of hypertension was higher in group I. We found higher number of adverse outcomes among females of syntometrine group as compared to oxytocin group.

Conclusion: In this study we concluded that use of syntometrine in third stage of labour was effective and useful in terms of reduction in blood loss and PPH as compared to oxytocin while frequency of adverse events and hypertension was higher in syntometrine group as compared to oxytocin.

Keywords: Pregnant Females, Third Stage Labour, Syntometrine, Oxytocin, Blood Loss

INTRODUCTION

Even for women who are in good health, pregnancy and delivery include serious health risks. Pregnancy-related health issues affect 40% of expectant mothers, while long-term or life-threatening illnesses affect 15% of all expectant mothers. [1] According to report of the World Health Organisation (WHO), 515,000 women died in 1995 as a result of pregnancy-related and childbirth-related problems. Because women frequently lose access to life-saving care, the majority of these deaths take place in two underdeveloped nations. In contrast to receiving competent treatment during labour, delivery, or the postpartum period, a woman in a developing nation is significantly more likely to get prenatal care. However, in 24 hours of birth, more than 50% of all maternal fatalities take place, with severe bleeding being the main cause. The leading cause of maternal mortality globally is severe 3 bleeding, often known as haemorrhage. Hemorrhage accounts for at least 25 percent of all maternal fatalities; in other nations, the percentages range from the less than ten percent to around 60 percent. Postpartum haemorrhage can result in severe anaemia in later life, even if a mother survives. [2,3]

The active control of the phase of labor is one strategy that has been marketed as a preventative measure for atonic PPH [4]. It has been demonstrated by several studies that, in approximately 40% of instances, PPH may be prevented by aggressive management of the 3rd stage of labour [5].

Several medications work to decrease PPH by causing the uterine contractions. Although oxytocin is the preferred medication, methylergometrine is still utilised in some facilities. Ergot derivatives are used for decades. The second- and third-line agents include a number of prostaglandins. But for these medications to work, they need to be kept chilled. The majority of women giving birth in underdeveloped, impoverished nations lack access to the hygienic equipment and training necessary for safe administration of the majority of uterotonics, which must be provided by injection. The prostaglandin E1 analogue misoprostol is heat stable and can be taken orally, rectally, or easy application. Although sublingual administration produces the greatest brain gets and the best absorption, oral and vaginal administration have been the preferred methods of delivery in the majority of randomised studies of preventive misoprostol [5,6].

According to a study of active vs gestation of the third stage [7], there is strong evidence that active care significantly lowers the incidence of PPH in both low-risk women and the general population. According to this review, which comprised the findings of multiple sizable randomised controlled trials [8,9], active treatment of the phase of labor as a regular preventive strategy is linked to a two- to threefold lower risk of PPH.

An essential component of the active control of labour is the routine preventive injection of a uterotonic substance. The relative benefits and drawbacks of the many uterotonic medication types that can be administered—including prostaglandins and misoprostol—are the topic of separate reviews; and (expectant management vs active versus).[10] For details about the active management (term babies) cord clamping procedure, see [11] (preterm infants). The comparison between oxytocin (Syntocinon®) alone and ergometrine-oxytocin (Syntometrine), which combines oxytocin five international unit (iu) and ergometrine 0.5 mg, is the main objective of this review. [12]

We conducted this study to determine the effectiveness of syntometrine and oxytocin in actively managing the third stage of labour in order to lower the risk of PPH and other undesirable third stage outcomes.

MATERIAL AND METHODS

This Randomized/Prospective study was conducted at Gynae & Obs department of Combined Military Hospital Peshawar for the duration from 1st June 2021 to 30th November 2021 and comprised of 140 females. After getting informed written consent detailed

demographics of enrolled cases were recorded. The study excluded women with a history of scarring of the uterus, third stage problems, established risk factors for PPH, hepatic illnesses, and cardiac patients.

Included females were aged between 18-40 years. Women who were singleton pregnant, had no obstetrical or other indications that would require an abdominal delivery, and had no known risk factors for PPH were included in this study. Patients were equally divided in two groups. Group I had 70 patients and received syntometrine (5 IU Synthetic Oxytocin and 0.5 mg ergometrine maleate) and in group II oxytocin was given to 70 females.

The patient was placed at the edge of a table for the delivery. Within one minute of the baby's birth, either 10 injectable units of oxytocin or 1 ampoule of syntometrine was administered in a random order. The user won't be aware of the drug getting administered because all of these medications will be the same colour and the ampoules will only be appropriately identified with numbers rather than names. After the placenta is extracted, the woman is placed over a disposable blood drape, which is a conical, graded plastic collection bag. The blood drape's blood accumulation is measured. Episiotomy-related immeasurable blood loss on average was estimated to be 50ml. SPSS 23.0 was used to analyze all data. Mean standard deviation was used for data presentation. Frequency and percentage was used for categorical variables. Chi-square test was used to determine difference with p value <0.005.

RESULTS

The mean age of the patients was 28.3±6.18 years and had mean BMI 27.6±11.25 kg/m^2. Mean gestational age was 36.11±5.19 weeks. Frequency of primigravida was 80 (57.1%). 72 (51.4%) females were from rural areas and 67 (47.8%) cases were educated.(table 1)

Table-1: Characteristics of included females

Variables	Frequency	Percentage
Mean age (years)	28.3±6.18	
Mean BMI (kg/m^2)	27.6±11.25	
Mean Gestational age (weeks)	36.11±5.19	
Gravidity		
Primigravida	80	57.1
Multigravida	60	42.9
Area of Living		
Rural	72	51.4
Urban	68	48.6
Education Status		
Educated	67	47.8
Non-educated	73	52.2

Frequency of emergency delivery was found in 85 (60.7%) cases while 55 (39.3%) females admitted to OPD.(figure-1)

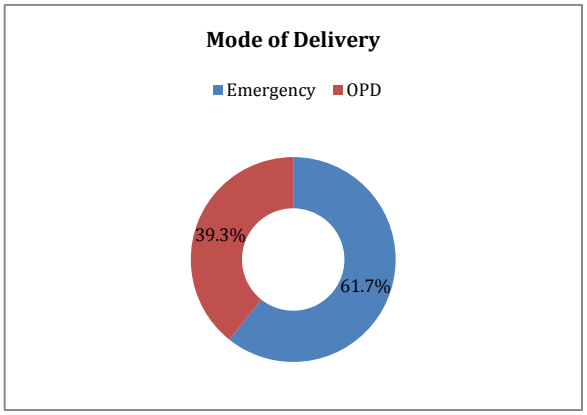

Figure-1: Mode of delivery among all cases

We found that mean blood loss in group II was higher 165.1±8.66 ml as compared to group I 118.7±9.39 ml with p value <0.005. There was no any PPH found in group I while in group II PPH found in 3 (4.3%) cases.(table-2)

Table-2: Comparison of outcomes among both groups

Variables	Group I	Group II
Mean Blood Loss (ml)	118.7±9.39	165.1±8.66
Post-Partum Hemorrhage		
Yes	0	3 (4.3%)
No	70 (100%)	67 (55.7%)

Frequency of hypertension was higher in group I. We found higher number of adverse outcomes among females of syntometrine group as compared to oxytocin group with p value <0.003.(table 4)

Table-4: Frequency of hypertension and adverse events among both groups

Variables	Group I	Group II
Hypertension		
Yes	7 (10%)	3 (4.3%)
No	63 (90%)	67 (95.7%)
Adverse Events		
Headache	4 (5.7%)	2 (2.9%)
Vomiting	6 (8.6%)	1 (1.4%)
Nausea	8 (11.4%)	3 (4.3%)
Chest Pain	3 (4.3%)	1 (1.4%)

DISCUSSION

Oxytocin, an artificial version of the octapeptide, is marketed under the names Syntocinon and Pitocinon. It enhances uterine retraction and increases uterine contraction frequency and force. Maleic acid, a buffer with a pH of 3.2, is present in the clear, colourless fluid that constitutes synthometrine injection. Syntometrine combines the persistent uterotonic action of ergometrine with the quick uterine action of oxytocin. Syntometrine has a longer-lasting uterotonic impact than oxytocin alone, which lasts just half an hour to an hour.[13]

In a double-blind, randomised, controlled study with 461 participants, Mitchell et al. found that the sytometrine group had a significantly lower postpartum haemorrhage risk, with a probability value of 0.37 (95% CI.16-0.85). [14] Combining these trials, an overall summary likelihood of 0.36 (95% CI 0.23-0.55) showed that intramuscularly administered syntometrine was linked to a considerably reduced incidence of postoperative complications than five units of oxytocin alone. [15] In current study, mean blood loss in oxytocin group was higher 165.1±8.66 ml as compared to syntometrine group 118.7±9.39 ml with p value <0.005. There was no any PPH found in group I while in group II PPH found in 3 (4.3%) cases. According to Edgardo Abalos[16], using syntometrine as component of AMTSL is linked to a considerable decrease in the occurrence of Postpartum hemorrhage (blood loss of 750 ml), regardless of dosage.

According to Yuen et al. [17], both the risk of PPH and the requirement for recurrent oxytocin injections were reduced by 40% in the syntometrine group when compared to oxytocin, and neither group had many adverse effects. 10 units of injectable oxytocin compared to syntometrine generally still favours syntometrine. In current study frequency of hypertension was higher in syntometrine group . We found higher number of adverse outcomes among females of syntometrine group as compared to oxytocin group with p value <0.003. These results were comparable to the previous researches.[18-20]

In randomised controlled studies comparing iv oxytocin (10 units) with injectable syntometrine for the treatment of the third stage of labour, we think this is only the tip of the iceberg. During a Medline literature search, we were only able to find a small number of prospective prospective studies that claimed intravenous oxytocin was equally effective as i.m syntometrine in preventing postpartum haemorrhage, but that it was also affiliated with a

substantially higher rate of uncomfortable maternal side effects.[21]

CONCLSUION

In this study we concluded that use of syntometrine in third stage of labour was effective and useful in terms of reduction in blood loss and PPH as compared to oxytocin while frequency of adverse events and hypertension was higher in syntometrine group as compared to oxytocin.

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