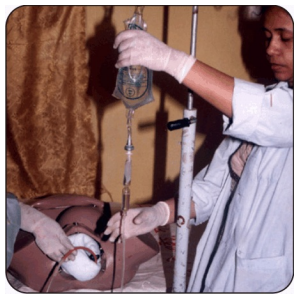
ORIGINAL **PROF-1343**

POST PARTUM HAEMORRHAGE PROPHYLAXIS;

COMPARISON OF THE EFFICACY OF MISOPROSTOL AND ERGOMETRINE IN CESARIAN DELIVERY



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ABSTRACT... Post partum hemorrhage (PPH) is defined as the loss of greater than 500ml of blood from the genital tract in the first 24 hours following delivery. PPH occurs in 2-11% of all deliveries**. Objective:** To compare the efficacy of misoprostol and ergometrine for the prophylaxis of Post Partum Haemorrhage. **Design:** Prospective study. **Setting:** Gynaecology and Obstetrics Department Military Hospital Rawalpindi. **Period:** From 01 July 2006 to 31 Dec 2006. **Patients & Methods:** A total of 200 patients were recruited in the study, they were divided in two groups, group – I (n-100) included those patients who were administered ergometrine intravenously at the time of delivery of head for the prophylaxis of post partum haemorrhage, Group – 2 (n-100) included those patients who were administered Misoprostol 800 microgram per rectally just before the start of cesarean section for the same purpose. Blood loss was calculated objectively by squeezing the soaked pads and quantifying the amount of clots in a kidney tray of standard size to be equal to 500ml.**Results:** In group I (n-100) 15 patients had mild PPH blood loss >500ml, out of them 03 had severe PPH requiring bimanual message and 02 patients required blood transfusion, in group II(n-100). 08 patients had PPH, blood loss >500 ml, out of them 01 patient required uterine message and none required blood transfusion. Chi-square test was applied to compare the efficacy of the two groups, P>0.05 showed no significant difference in the efficacy of the two groups but the side effects were obviously less in the Misoprostol group. No patient in group II had GI symptoms while 36 patient in group I had retching and, vomiting and 03 patients had raised B.P after the administration of ergometrine. **Conclusion:** Misoprostol administered per rectally has equal efficacy to ergometrine given intravenously for the prophylaxis of post partum haemorrhage but the side effect profile and patient tolerability is better with Misoprostol.

Key words: PPH (Post Partum Haemorrhage)

INTRODUCTION

Post partum hemorrhage (PPH) is defined as the loss of greater than 500ml of blood from the genital tract in the first 24 hours following delivery[1]. PPH occurs in 2-11% of

all deliveries[1-3]. However, when blood loss is quantitated objectively, the rate of PPH increases to 20%[3]. Fortunately, life-threatening PPH is rare and occurs with a frequency of 1 per 1000 deliveries in the industrialized world[4]. In the most recent triennial report into "Why Mothers Die 2000–2002", catastrophic obstetric haemorrhage was the second most common cause of direct maternal mortality[4]. The mortality rate per million maternities has more during 2000–2002 compared with seven in the previous triennium. Excessive blood loss after childbirth is a major cause of morbidity and mortality in both industrialized and non industrialized countries[2]. In the rural communities where the majority of population live, lack of access to skilled birth attendants, availability of oxytocics, unavailability of safe blood transfusion, high incidence of anemia worsen the outcome of post partum haemorrhage. The difference in absolute mortality rate from post partum heamorrhage between industrialized and non-industrialized countries underscore the effectiveness of medical care in the reduction of mortality from this cause and the need to improve this care further, as well as finding low-cost implimentable methods of reducing the problem in environments with limited medical facilities.

The conventional definition of post partum haemorrhage is arbitrary and clinical, based on visual estimation of blood loss of 500 ml or more. Visual estimation of blood loss after delivery is very subjective and has been shown to under estimate true blood loss. Many randomized controlled trials have been done to measure blood loss at PPH objectively using blood soaked linen and packs measurement and use of bed pan under the patient have been tried.

A new method of directly measuring blood loss was recently developed[5]. After delivery of the baby, the amniotic fluid is allowed to drain away, and amniotic fluid soaked bed-linen is covered with a dry disposable 'linen-saver'. A low profile, wedge-shaped plastic 'fracture bedpan' is slipped under the women's buttocks and left in place to collect blood loss over the next hour. Blood and clots from the bedpan are decanted into measuring cylinder and measured. Blood-soaked swabs and linen savers are weighed, the known dry weight subtracted and the calculated volume added to that from the bedpan. In the WHO trials, this method was simplified by not weighing swabs, but simply adding heavily soaked small swabs to the blood in the measuring cylinder[5].

Because measured blood loss is considerably greater than that estimated, the clinical threshold for excessive measured blood loss should be set at 1000 ml rather than 500 ml[6].

An important recent development has been the demonstration that the effectiveness of oxytocin in the third stage of labour is dose-dependant. A recent review of randomized trials showed a significant reduction in the risk of postpartum blood loss of 500 ml or more for women receiving the combination drug ergometrine and oxytocin (syntometrine) when compared to oxytocin 5 IU. Syntometrine increased the risk of hypertension and vomiting. No significant differences were found in neonatal outcome or the rate of full breast feeding at the time of discharge from hospital[6].

Recently, misoprostol, a prostaglandin E1 analogue used orally for the prevention of peptic ulcer disease has also been reported for the prevention of postpartum haemorrhage[7]. Side effects of oral misoprostol are mainly gastrointestinal and are dose-dependent. Clinically insignificant hypotensive effects of a high oral dose. A major problem associated with the use of oral misoprostol in the third stage of labour has been the occurrence of shivering and pyrexia. Misoprostol (400 mg) administered rectally has also been compared with non-identical placebo in one randomized trial[8]. The mean duration of the third stage of labour was similar. In the misoprostol group, 13/270 women (4.8%) had blood loss of 1000 ml or more, compared to 19/272 women(7%) in the placebo group (RR,0.69;95% CI, 0.35-1.37), with low rate of side effects. One woman in each group vomited (both had postpartum haemorrhage). There were no episodes of diarrhea[8]. If rectal misoprostol is confirmed in larger studies to be effective in reducing postpartum blood loss, the low rate of side effects may be an important advantage of this route of administration. The

use of larger dosages may be feasible rectally than orally.

PATIENTS & METHODS

The study was carried out at Military Hospital, Rawalpindi from 1st July 2006 to 31 Dec 2006. Patients were booked in the Ante-natal OPD of the obstetrics Department of MH according to following criteria; were selected on the basis of History, those patients who were in between the age group of 22 – 35 years of age, were either para 4 or below all of them who had a Haemoglobin of 11gm/dl or above and all the patients who were selected for elective cesarian section due to either previous cesarians, breech presentation cephalo-pelvic disproportion were included in the study. While the patients who were more than 35 years of age, had five or more children, they had a previous history of PPH or retained placenta and those who were undergoing emergency LSCS for failed POL/foetal distress were not included in the study.

Inclusion Criteria

Patients in the reproductive age group.
22 – 35 years of age with para 4 or below.
All patients undergoing elective cesarian section.
Patients booked in the anti-natal clinic of Military Hospital.
Patients who had Hb % pre-operatively more than 11gm/dl.

Exclusion Criteria

Patients more than 35 years of age.
Group multipara five or more alive children.
Previous history of PPH/ retained placenta.
Patients undergoing emergency LSCS for failed POL/foetal distress.
Patients with extension of scars or heamorrhage due to tears etc were not included.

In the above mentioned criteria 200 patients were selected, they were divided in to two groups.

In Group I, 100 patients (n=100) 0.5 mg ergometrine was given intravenously at the delivery of the head or anterior shoulder, while in group II, (n=100) 800 microgram misoprostol was administered per rectally just before the start of cesarian section. Blood loss was measured objectively with the measurement of 01 kidney tray of standard size was equivalent to 500ml, and a blood loss of more than 500 ml was considered as post partum haemorrhage.

RESULTS

In group I (n=100), 15 patients were observed to have PPH (blood loss more than or equal to 500 ml) Out of them 03 had severe PPH required bimanual massage and 02 patients required blood transfusion. While in group II (n=100) in 08 patients had PPH blood loss >500 ml, out of which 01 patient required uterine massage for uterine atony and none required blood transfusion. Chi–square test was applied to compare the efficacy of the two groups P > 0.05 showed no significant difference in the efficacy of the two groups.

Table-I. Comparison of the efficacy of Misoprostol & ergometrine in the prophylaxis of PPH

Category	Total Pts	PPH		No PPH	
Ergometrine	100	15	15%	85	86%
Misoprostol	100	8	8%	92	92%
P > 0.05					

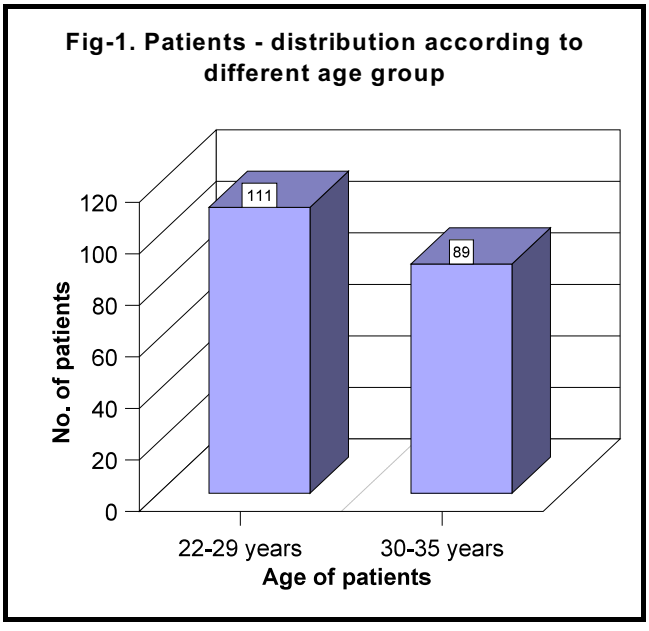
Table-II. Side Effect Profile in group I & group II patient

Group	Side effects	
	Gastrointestinal	Hypertension
Group I (n=100) Ergometrine	36	03
Group II (n=100) Misoprostol	none	none

No patient in group II had any gastrointestinal (GI) symptoms while 36 patients in group I had retching and vomiting secondary to ergometrine administration and 03 had raised blood pressure.

Table-III.							
Groups	No of pts	Mild PPH			Severe PPH		
		No	95% CI	P Value	No	95% CI	P value
I	100	15**	(8.64,23.53)	0.000	07**	(2.86,13.89)	0.000
II	100	08**	(3.52, 15.16)	0.000	01**	(0.02, 5.44)	0.095^{NS}

***Highly significant as P-value <0.01.* *NS = Non significant as P value >0.05*



DISCUSSION

Uterine atony is responsible for up to 80% of primary PPH[9]. Prevention of uterine atony is the key in reducing the incidence of PPH. The benefits of active management of the third stage of labour are well documented[10]. In a large, randomised, control trial (n=1512) published in The Lancet, women were randomized to either active management of the third stage or expectant management. Active management of the third stage of labour included a prophylactic oxytocic given within 2 min of the baby's birth, immediate clamping and cutting of the cord, and delivery of placenta by controlled cord traction or maternal effort. The rate of PPH was significantly lower in the active management group (6.8% versus 16.5%; P< 0.0001)[11].

In a meta-analysis of seven randomized trials involving over 3000 women, the use of prophylactic oxytocin was compared to no uterotonic usage[5]. The former group demonstrated benefits with regard to both reduced blood loss and also the need for therapeutic oxytocics. There was, however, a non-significant trend towards more manual removals of the placenta.

In a randomized, double-blind, prospective study, intramuscular syntometrine (synthetic oxytocin 5 IU and ergometrine 0.5 mg) was a better choice than syntocinon (synthetic oxytocin) in the management of the third stage of labour[12]. Syntometrine not only reduced blood loss after delivery, but was associated with a 40% reduction in the risk of PPH and the need for repeat oxytocic injections. Its use, however, is contra-indicated in women with hypertensive disorders. Ergometrine is comparable to oxytocin with regard to its haemostatic efficiency, but oxytocin seems to promote placental separation and expulsion better and, thereby, reduce the risk of retained placenta[10].

Haemobate or carboprost, a 15-methyl analogue of prostaglandin F2α (PGF2 α), is as effective as syntometrine in the prophylaxis of primary PPH, but there is a significant increase in diarrhoea with GF2α medication[10]. Intramuscular haemobate is as effective as the intramyometrium route. These prostaglandins are also much more expensive than oxytocin or ergometrine.

Rectal or oral miscoprostol (600 ug) are significantly less effective than oxytocin (10 IU) in the active management of third stage of labour[13].

The Pakistani data also shows uterine atony as a major cause of PPH in a recent study conducted in Dow University of Health Sciences Karachi 48% of cases PPH responded to rectal Misoprostol in the first 30 minutes and it had fewer side effect[14]. Maternal mortality was found to be 2.66% due to PPH in a study conducted in Hayat Abad Medical Complex Peshawar[15]. PPH is the major killer in all parts of the world especially in under developed countries like Pakistan & active management of 3rd stage of labour and prophylaxis by Uterotonics can help a lot in reducing the mortality and morbidity associated with it.

CONCLUSION

Misoprostol administered per rectally has equal efficacy to ergometrine given intravenously for the prophylaxis of post partum haemorrhage but the side effect profile and patient toller-ability is better with Misoprostol.

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