

Active Management of Third Stage of Labour: Conventional Versus International Federation of Gynaecology & Obstetrics (FIGO) Guidelines in A Resource Poor Setting

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ABSTRACT

Objective: To compare the efficacy of AMTSL of FIGO/ICM guidelines with conventional management of third stage of labour in terms of maternal morbidity in resource poor setting of tertiary hospital.

Methodology: It was a Quasi Experimental Study The study was conducted in Gynecology Unit-III, Sandeman province Hospital, Quetta. Six months from 01-11-2007 to 05-02-2008 then From 06-05-2008 to 01-07-2008. Total 200 labouring women after gestational period of 28 weeks till 41 weeks having spontaneous labour or augmented labor. 100 women were managed conservatively and 100 women managed by FIGO guideline. Two hundred women recruited from the labour room. Hundred women were managed conventionally. Hundred women were managed by FIGO guideline. Data was compiled, transfer and analyzed accordingly through SPSS version 12.0.

Results: As compared to group A, in group B the risk of PPH, need of blood transfusion was significantly high and there was significant reduction in haemoglobin percentage after delivery in group B as compared to group A. Other side affects like headache, nausea, vomiting are also higher in group B as compared with group A with further risk of elevation of systolic blood pressure in group B.

Conclusion: It is concluded that FIGO guidelines of AMTSL are more efficacious in prevention of PPH. The conventional method of third stage of labour with minimal side effects can safely be administered to hypertensive patients.

Key Words: Post partum, Hemorrhage, Third stage of labour, Uterotonic agents.

INTRODUCTION

Every year there are 14 million cases of postpartum hemorrhage (PPH). PPH accounts for approximately 25% of maternal deaths worldwide¹ and for up to 60% of deaths in developing countries.² In industrialized world, life threatening PPH occurs with a frequency of 1 per 1000 deliveries.³ Massive PPH at term has been introduced as blood loss of more than (>) 1000ml or 1500ml after delivery, being mainly responsible for maternal mortality & morbidity.⁴ Globally hemorrhage accounts for 28% of all maternal deaths.⁵ As estimation of blood loss is usually subjective, severe hemorrhage has been defined as estimated blood loss (EBL) >1500ml, peripartum fall in hemoglobin (Hb) concentration of $\geq 4\text{gm/dl}$ or acute transfusion of 4 or more units of blood.⁶

According to local estimate Obstetrical haemorrhage was leading cause of maternal mortality (43%) with PPH occurring in 14% maternal deaths.⁷ Another study of maternal deaths in developing countries showed rate of

PPH being 30% in about 125 million births a year.⁸ Uterine atony, due to various underlying risk factors, is major cause of PPH.⁹ Antenatal risk assessment predicts only 40% of those who will have PPH.⁵ As every woman is potentially at risk of having PPH, active management of third stage of labour should be offered to all women.¹⁰ The benefits of active management of third stage of labour are well documented.¹¹ This practice has saved many lives in developing countries as Guatemala, Vietnam & Zambia.¹² In 2003, International Confederation of Midwives (ICM) & International Federation of Gynecology & Obstetrics adopted a joint statement for implementing the "Modified" Active Management of Third Stage of Labour (AMTSL).¹⁰

If FIGO/ ICM guidelines of AMTSL can be shown to be more efficacious in prophylaxis of PPH than conventional method of third stage of labour in resource- poor & illiterate setting. Universal application can then be reinforced in country for better management of third stage of lab

METHODOLOGY

It was a Quasi Experimental Study. The study was conducted in Gynaecology Unit-III, Sandeman

Provincial Hospital, Quetta. Six month (from 01-11-2007 to 05-02-2008 then 06-05-2008 to 01-06-2008). Two hundred women recruited from the labour room. Hundred women were managed conventionally. Hundred women were managed by FIGO guideline. on-probability purposive sampling.

Inclusion Criteria :Verbal informed consent was taken as pre-requisite for the recruitment, All labouring women presented after gestational period of 28 weeks till 41 weeks estimated by their LMP and U/S, Singleton pregnancies of all ages and parity women in labour, Spontaneous vaginal deliveries. Pregnancies with alive fetus, not in distress and not needing emergency delivery. Exclusion Criteria: intrauterine death (IUD) cases with underlying inherent risk of coagulation defects, Complicated labours with duration of ruptured membranes of >8 hours duration, or associated with maternal dehydration, exhaustion or febrile morbidity, Dai (untrained TBAs) mismanaged cases presenting with retained placenta or delivered outside the said hospital, Informed consent from patient was taken for information or record maintenance on a specially designed proforma (attached), Patients attending Gynae/Obs OPD and labour room were assessed for inclusion criteria, both booked and unbooked patients were considered, Detailed history was taken and complete physical examination was performed. Routine investigations including ultrasonography were done. Women were randomly allocated to AMTSL group according to serial numbers i.e. every 2nd case. Hundred women were given AMTSL according to FIGO/ICM guidelines and 100 were administered conventional management of third stage of labour.

AMTSL Guidelines of FIGO/ICM Comprises of Three Basic Steps Intramuscular Syntocinon 10 IU with 1 minute of delivery of baby. Controlled cord traction of Spencer, comprising of traction of placenta only with uterine contraction.

Uterine massage after placental delivery, followed by palpation of uterus abdominally every 15 minutes for 2 hours.

Conventional Method of Third Stage Management Comprises of Two Steps Intramuscular Syntometrine (5 IU Syntocinon + 0.5mg Ergometrine) or intravenous 5 or 10 IU Syntocinon, at crowning or delivery of anterior shoulder of baby,¹⁴ followed by Syntocinon

infusion 20 30IU in 1000ml of Lactated Ringer's solution.¹⁵

Immediate cutting of cord is followed by delivery of placenta by Brandi Andrews method. Blood loss analysis postpartum was according to measurements by (medium-sized), kidney tray (equals to 500ml blood).³ in addition to weighing of soaked linens and blood clots. Maternal well-being be monitored on basis of vital signs especially BP, pulse and urine output, or any other symptoms like headache, nausea and vomiting.

Statistical analysis was done on SPSS-16 version software. Descriptive statistics like age and parity were analyzed. Maternal outcome analysis was scrutinized with cross-tabulation on basis of further therapeutic measures. Number of blood transfusions, fall in haemoglobin and estimated blood loss in each group.

Frequency or proportion was computed for categorical variables like past history, complication. Mean and SD was computed for quantitative variable like age. Chi-square test was used to compare complication between groups (conventional vs FIGO guideline). P <0.05 was considered level of significance.

RESULTS

The present study included two hundred patients out of which hundred patients in Group A (Figo/ICM) and hundred in Group B (Conventional). This study was conducted at Obstetrics & Gynaecology ward at Bolan Medical College Sandeman Provincial Hospital, Quetta.

The mean age of patients in group A was 30.58±4.2 years while in group B was 31.42±4.03 out of 100. 16(16%) patients were in age group between 20-25 years in group A, while 18(18%) patients were in the group B. Thirty two (32%) patients were in age group between 26-30 years in group A, while 30 (30%) the patients were in group B. Forty four (44%) patients were in age group between 31-35 years in group A, while 50 (50%) patients were in group B. The remaining 8 (8%) patients were in age group Between 36-40 years in group A, while 2(2%) patients were in group B.

The difference was statistically not significant (Table1). In group A, mean of first stage duration was 6.17±1.80 hours and 5.84±1.86 hours in group B and second stage duration in group A was 7.66±2.10 and 7.42±2.09 in the group B. In third stage duration was 14.60±2.90 minutes and

14.10±3.71 minutes in group B. The difference was statistically not significant (Table 2).

Table 3 shows the labour characteristics of 47 (47%) patients in group A and 30 (30%) patients in group B were augmented. Fifty three (53%) patients underwent spontaneous labour in group A and 70 (70%) patients in group B. Table 4 & 5 shows the systolic blood pressure before delivery was 124.90±7.31 mmHg in group A and 122.40±5.52 in group B. While systolic blood pressure after delivery of active management of third stage of labour was 120.70±6.85mmHg in group A and 131.55±11.75 in group B. The difference was statistically significant (p<0.05). The diastolic blood pressure was 85.70±9.01 mmHg in group A and 81.20±5.55 mmHg in group B. While diastolic blood pressure after delivery of active management of third stage of labour was 79.60±6.01 mmHg in group A and 90.35±10.85 mmHg in group B. The difference was statistically significant (p <0.001).

The mean±SD of antenatal haemoglobin was 8.5±0.40 in group A and 10.03±0.46 which is statistically significant (P <0.05). The post delivery

haemoglobin was 7.8±0.42 in group A and 9.15±0.69 in group B which is statistically significant (p <0.05) (Table 6).

The renal failure was 2 (2%) in group A while 10 (10%) in group B which is statistically significant (P 0.006). Uterine atony 16 (16%) in group A and 34 (34%) in group B which is statistically significant (p 0.003). There was no other complication in group A and B (Table 7).

Table 8 shows the estimated blood loss was 511.00±161.36ml and 625.00±222.07ml in group B which is statistically highly significant (P <0.001).

Table 9 shows the symptoms after delivery. The nausea was in 39 (39%) patients in group A and 13 (13%) in group B. Nausea + vomiting was 10 (10%) patients in group A and 38 (38%) patients in group B. No symptom was seen in group A. There were other symptoms in 27 (27%) patients in group B.

Table 10 shows the blood transfusion in group A was 12 (12%) patients and in group B 22 (22%) patients.

Table 1: Age Distribution of Patients (n=200)

Age in years	Group A (n=100)		Group B (n=100)	
	No. of Patients	Percentage	No. of Patients	Percentage
20-25	16	16.0	18	18.0
26-30	32	32.0	30	30.0
31-35	44	44.0	50	50.0
36-40	8	8.0	2	2.0
Total	100	100.0	100	100.0

Mean±SD = 30.58±4.2 31.42±4.03

Key Words:

Group A: Figo/ICM

Group B: Conventional

SD = Standard deviation

Table 2: Distribution of Duration of Stages (n=200)

Stage Duration	Group A (Mean±SD) (n=100)	Group B (Mean±SD) (n=100)	P value
1 st stage (hours)	6.17±1.80	5.84±1.86	0.20
2 nd stage (hours)	7.66±2.10	7.42±2.09	0.20
3 rd stage (minutes)	14.60±2.90	14.10±3.71	0.29

Table 3: Distribution of Labour Characteristics (n=200)

Labour Characteristics	Group A (n=100)	%	Group B (n=100)	%
Augmented labour	47	47.0	30	30.0
Spontaneous labour	53	53.0	70	70.0

Key Words: Group A: Figo/ICM

Group B: Conventional

Table 4: Comparison of Systolic and Diastolic Blood Pressure Before Delivery (n=200)

	Group A (Mean±SD) (n=100)	Group B (Mean±SD) (n=100)	P value
Systolic Blood Pressure	120.70±6.85	131.55±11.75	<0.005
Diastolic Blood Pressure	79.60±6.01	90.35±10.85	<0.001

Table 5: Comparison of Systolic and Diastolic Blood Pressure After Delivery (n=200)

	Group A (Mean±SD) (n=100)	Group B (Mean±SD) (n=100)	P value
Systolic Blood Pressure	124.90±7.31	122.40±5.52	<0.05
Diastolic Blood Pressure	85.70±9.01	81.20±5.55	<0.001

Key Words: Group A: Figo/ICM, Group B: Conventional, SD = Standard deviation

Table 6: Comparison of Antenatal and Postnatal Haemoglobin of Patients (n=200)

Complications	Group A (n=100)	Group B (n=100)	Chi-square	P value
Renal failure	2	10	7.85	0.007
Uterine atony	16	34	9.45	0.003
Myocardial ischemia	0	0	0	0
DIC	0	0	0	0
Near miss cases	0	0	0	0

Key Words: Group A: Figo/ICM, Group B: Conventional, SD = Standard deviation

Blood Transfusion (units)	Group A (n=100)		Group B (n=100)	
	No. of Patients	%	No. of Patients	%
1 unit blood	12	12.0	22	22.0

Table 7: Comparison of Complications of Patients (n=200)
Group A: Figo/ICM, Group B: Conventional, SD = Standard deviation

	Group A (Mean±SD) (n=100)	Group B (Mean±SD) (n=100)	P value
Estimated blood loss	511.00±161.36	625.00±222.07	<0.001

Table 8: Comparison of Estimated Blood Loss (EBL) ml of Patients (n=200)

Key Words: Group A: Figo/ICM, Group B: Conventional

Symptoms	Group A	%	Group B	%
Headache	0	0	6	6.0
Nausea	39	39.0	13	13.0
Nausea + vomiting	10	10.0	38	38.0
Headache + nausea + vomiting	0	0	5	5.0
Headache + vomiting	0	0	10	10.0
Headache + nausea	0	0	12	12.0

Table 9: Comparison of Symptoms after Delivery of Patients Among Both Groups (n=200)

Key Words: Group A: Figo/ICM, Group B: Conventional, SD = Standard deviation

Table 10: Frequency of Blood Transfusion (n=200)

Group A: Figo/ICM
Group B: Conventional.

	Group A (Mean±SD) (n=100)	Group B (Mean±SD) (n=100)	P value
Antenatal	9.94±0.50	10.03±0.57	0.26
Postnatal	9.23±0.53	9.15±0.69	0.34

DISCUSSION

Postpartum haemorrhage is the postpartum blood loss of 500ml or more in the first 24 hours. Massive PPH term has been introduced as blood loss of more than 1000ml, 1500ml after delivery, being mainly responsible for maternal mortality and morbidity.⁴

Uterine atony is the most common cause of PPH and occur in the immediate postpartum period due to various underlying risks factors.⁹ Other risk factors for postpartum haemorrhage are multiparity, retained placenta, fetal macrosomia (>4kg), prior PPH, genital tract laceration, chorioamnionitis and prolonged labour.⁴⁻⁶

As every woman is potentially at risk of having PPH, active management of third stage of labour should be offered to all women.¹⁰

Post partum haemorrhage is a largely preventable complication of third stage of labour as many of the patients at risk can be identified during pregnancy or labour and appropriate steps taken to prevent blood loss.

This study was designed to compare the efficacy of active management of third stage of labour of FIGO/ICM guidelines with conventional management of third stage of labour. In the current study, 200 patients were divided into 2 groups. In group A (n=100) AMTSL by FIGO/ICM guideline and group B (n=100) patients were managed by conventional method.

The patients characteristics including age, gestational amenorrhea, parity, duration of labour and outcome after delivery blood loss in 24 hours of delivery, post delivery haemoglobin percent, need for blood transfusion and other symptoms like, nausea, vomiting and headache and increase in blood pressure were evaluated. The distribution of patients according to different age groups, parity and duration of pregnancy discussed. No statistically significant difference between two groups was found ($p > 0.05$). In a study carried out by Bias¹³ showed that prolonged 3rd stage of labour even in nulliparous low risk women has significant relationship with PPH. However in our study the mean duration of 3rd stage of labour which compared with group A and B was 14 and 14 minutes respectively which is statistically not significant ($p > 0.05$). In a study conducted by Tessier¹⁴ showed increased incidence of postpartum haemorrhage in patients whose labour was augmented with oxytocin. However in our study there was no significant difference in the

incidence of PPH, in patients whose labour was augmented with oxytocin in both group A and B.

Gulmezglu¹⁵ found uterine atony the most common cause of PPH. This is comparable to our study in which 16 patients in group A and 34 patients in group B had uterine atony which is statistically significant.

Regarding complications El-Refary¹⁶ showed that with ergometrine and syntometrine, nausea, vomiting, headache are common while these side effects are less with oxytocin. This is comparable to our study in which nausea was 39% in group A, 13% in group B. Nausea and vomiting was 10% in group A and 38% in group B, headache was 10% in group B and none in group A.

In a study conducted by Browning¹⁷ found that there is transient but definite elevation of blood pressure associated with the use of ergometrine in the management of third stage of labour and is comparable to our study in which there is statistically significant elevation in diastolic and systolic blood pressure after delivery with active management of third stage of labour in group B as compared to group A. This is supported by many other studies one of there was conducted by Chay¹⁸ according to which syntometrine was associated with higher risk of hypertension while oxytocin is less likely to cause it. This is again supported by study conducted by McDonald¹⁹ in which statistically significant difference was observed in the presence of maternal side effects, including elevation of diastolic pressure, vomiting, nausea, associated with ergometrine – oxytocin use compared to oxytocin use.

Wendy R, Shelden and colleagues according to them active management of 3rd stage including three interventions, a controlled cord traction oxytocin prophylaxes and uterine massage reducing PPH²⁰.

Gizzo S, Patrelli TS et al concluded in their study that Prophylactic oxytocin should be offered routinely in the third stage of labor in all women. The prophylactic use of uterotonics should be individualized²¹.

Based upon the current results of our study it is indicated that AMTSL with FIGO/ICM guideline is effective in the prevention of PPH with minimal side effects such as nausea, vomiting and headache can be administered to hypertensive patients safely as compared to conventional method.

CONCLUSION

Post partum haemorrhage is a serious obstetrical emergency having unpredictable and dreadful consequences. This complication can be prevented in the first instance to take place and then to become life endangering by skillful attendance at birth so that risk factors can be identified in time. It is therefore evident that in order to deal such acute emergencies, there should be clear cut guidelines in every obstetric unit to manage this condition. By strictly adhering the guidelines and practice drills, significant reduction in the incidence of massive haemorrhage can be achieved. It is concluded that FIGO guidelines of AMTSL are more efficacious in the prevention of PPH than the conventional method of third stage of labour with minimal side effects and can safely be administered to hypertensive patients. So, its universal application can be reinforced in the labor wards for better management of third stage of labour.

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