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ACTIVE MANAGEMENT OF THIRD STAGE LABOR IN PREVENTION OF PPH IN AT RISK MOTHERS

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Introduction

The third stage of labor refers to the period following the delivery of the fetus to the delivery of placenta. Relatively little thought or teaching seems to be devoted to the third stage of labor compared with that given to first & second stages. A leading North American obstetrics text devotes only 4 of more than 1500 paper to third stage of labor but significantly more to the complications that may arise immediately following delivery (Cunningham, 2001)1.

One author states, "This indeed is the unforgiving stage of labor and in it there lurks more unheralded treachery than in both the other stages combined. The normal case can, within a minute, become abnormal and successful delivery can turn swiftly to disaster" (Donald, 1979)2.

About 5.29 lakh mothers die in child birth every year in the world (WHO, 2004). Maternal mortality and morbidity is 50 times more common in developing countries than in developed countries (Kwast et al, 1986)3. According to WHO report 2004, maternal mortality ratio are shown as MMR per 1 lakh Live Birth.

PPH remains the most common cause of maternal death in developing countries. The condition has not changed for over a century. WHO statistics suggest that 25% of maternal deaths are due to PPH accounting for more than 100,000 maternal deaths per year (Abouzahr,1998)5. The death of these mothers has serious complications for the newborn and any other surviving children.

Active management of 3rd stage of labor with prophylactic oxytocics, controlled cord traction and uterine message has made the III stage of labor less hazardous. Careful vigilance during the short interval between the delivery of baby and placenta will go a long way in decreasing retained placenta with its attendant risks.

Objective:

This preliminary study was undertaken

To analyse the active management of 3rd stage of labor after delivery of placenta.

MATERIALS AND METHODS

Study design : Prospective cohort study

Study population : All women delivered vaginally were recruited for the study based on the inclusion and exclusion criteria.

MATERIALS AND METHODS

The study was approved by the hospital ethical committee.

Inclusion criteria

Following were the inclusion criteria on the basis of which the patients were included in the study.

- Over distended uterus as in big baby, multiple pregnancy, hydramnios.
- High parity (5 and above)
- Abruptio placenta
- Chorio amnionitis
- Prolonged use of oxytocin
- Previous H/O PPH
- Anemia

Exclusion criteria

Patients with following risk factors were excluded from the study.

- Heart disease
- Epilepsy

• Severe anemia
• Traumatic PPH
• Hepatic disorders
Sample size : total of 100 patients were selected

The following factors were noted in all patients:
i) Detailed history including age, parity, socioeconomic class, booking status and medical disorders if any
ii) Physical examination – systemic examination and per abdomen examination.
iii) Pulse rate and blood pressure at the time of admission into labor ward and after delivery of placenta.
iv) Onset of labor
v) Duration of I and II stage labor.
vi) Nature of delivery.
vii) Assessment of general condition of the patient immediately after delivery,
viii) Uterine contour.
ix) Duration of third stage labor: Time taken for the separation of placenta from the time of administration of oxytocics. The lengthening of extravulval portion of cord was taken to indicate placental separation.
x) Blood loss in the third stage of labor: Immediately after delivery of the baby when all liquor has drained out, the patient was brought to the edge of the table where an inflated Kelley's pad was kept ready to place under the patient's gluteal region. The lower end of pad was inserted into a measuring jar of 2 l capacity with 20 ml graduation. After 20 – 30 minutes, the clots in jar were weighed separately and added to the blood in jar. The average immeasurable blood loss due to episiotomy was taken as 50 ml. Similarly when there was profuse bleeding from episiotomy, such patients were excluded.
xi) The change in hemoglobin concentration following delivery by measuring the baseline hemoglobin soon after patient is admitted with labor pain to ward and repeating it 24 hours after delivery by Sahli's hemoglobin estimation method.
xiii) Need for additional oxytocic therapy and blood transfusion if any were noted.
xv) Other complications like retained placenta, and uterine inversion if any was noted.
Statistical methodology : All the above parameters were assessed and the data analysed using paired t test and chi- square test. A "p" value of < 0.05 was taken as statistically significant.

Results

Table 1: baseline characteristics of the study participants

Parameter	Total n=100 (%)
Age	28.49±10.14 (mean±SD)
Booking status	
Booked	98
Unbooked	2
Gravida	
One	18
Two	51
Three	24
Four and more	7
Risk factors	
Over distended uterus	53
Anemia	27
Prolonged labour	20
Nature of delivery	
Labour natural	58
LN with episiotomy	33
Instrumental vaginal delivery	9

Mean duration of third stage labor in study was 3.27 min .
16% of cases in study group had blood loss of less than 100ml. All the patients in study group had blood loss of more than 100ml.
2% of cases in study group had blood loss of >500ml. None >1000ml. The mean blood loss in the patients was 221.2 ml.
Mean blood loss was maximum in patients with prolonged labor, followed by cases with over distended uterus and grand multipara. Most of the patients with prolonged labor had blood loss of over 500 ml unless managed actively.
The incidence of PPH (Blood loss >500 ml) in the study group was 2%.
Most common side effect noted in the patients studied was increase in blood pressure (10-20mm Hg either systolic or diastolic or both).

• Less than 10% of the cases had nausea and vomiting.
• None of the cases had retained placenta or uterine inversion

DISCUSSION

This study was done to analysethe efficacy of active management of third stage labor. Most of the patients in this study were in age group 20 – 30 yrs (80 – 84%) Advancing maternal age is related to increased risk of death due to hemorrhage (Callaway et al, 2005).40 Incidence of PPH is higher in women under the age of 20 years (Ian Donald).11 Multiparity is the most common cause of PPH (Ian Donald).41 Nulliparity is a risk of PPH with an odds ratio of 1.5 (Combs et al).42 Fuchs and collegues (1985):43 incidence of PPH in para 4 or more (2.7%), increased 4 fold compared with general population. Babinski (1999):44 In low parity the incidence was 0.3% and in para 4 or more it was 1.9%. Feeney et al45: incidence of PPH in grand multipara is 13% In our study, one grand multipara in the control group had PPH. According to various literature: PPH occurred in 2-11% of all deliveries (Newton 1961)47. 20% of women have no risk factor for PPH (Varner, Metal)49 PPH was reported to occur is 6 – 22% of twin deliveries (Newton 1986). Recurrence of PPH is 25% (Dew Hurst, CJ et al).33 Incidence of PPH in twin pregnancy is high with an odds ratio of 3.3 (Combs 1991)42. Conde Agudelo53 and co-workers (2000) showed that PPH was increased 2 fold in twin pregnancy. Incidence of atonic PPH was 7.3% in vacuum and 12.5% in forceps deliveries (Williams et al 1981)51. Forceps and Vacuum has increased risk of PPH with an odds ratio of 1.7 (Combs 1991).42 In this study the incidence of atonic PPH was 7.6% with instrumental vaginal delivery. Cochrane review 200229B showed that the III stage duration is significantly shortened (80%) in Active group as compared to the physiological group with a relative risk of 0.18 and 95% confidence interval of 0.14-0.24. In the Bristol trial7 the mean III stage duration was 5min in Active and in physiological group it was 15 min which was statistically significant with a p value of <0.001. In Hinchingbrooke trial6 the mean III stage duration was 8 min in Active group and 15 min in physiological group with a p value of <0.001. Thilaganathan et al38 showed that the duration of third stage was significantly longer in physiological group with a p value of <0.001. Tsu et al36 had a 80% reduction in the III stage duration with Active Management of Third stage Labor with an odds ratio of 10.20, 95% confidence interval 0.11-0.35. Prendiville et al29A showed that the mean difference was -9.77 min with a confidence interval of -10 to -9.53. Uterine exhaustion following prolonged labor is the principle cause of PPH (Ian Donald)41. Risk of PPH in prolonged labor is 12.5% (Freidman)57. Prolonged labor has an increased risk of PPH with an odds ratio of 2.9 (Combs 1991)42. Multiple pregnancy has 4.5 times increasedrisk of PPH (Stones et al).58 Birth weight of >4 kg is 1.9 times more prone for PPH (Stones et al).

The meta-analysis of 5 trials in Cochrane review 200229B showed a 60% reduction in incidence of PPH of >500 ml and PPH >1000 ml. Relative risk of 0.38 and 0.33 respectively and a 95% confidence interval of 0.32-0.46 and 0.21-0.51 respectively. For every twelve patient receiving active management rather than physiological management, one PPH was prevented.

Conclusion

Active management of third stage of labor should be the routine management of choice for every women expecting to deliver a baby by vaginal route in a maternity hospital. IV oxytocics given immediately after delivery of baby is more effective than when given after delivery of placenta in preventing the postpartum hemorrhage. This can easily be timed even by paramedical personnel.

Controlled cord traction with counter traction is effective in preventing uterine inversion and entrapment of the placenta. The need for additional intervention is reduced by giving oxytocic before delivery of placenta.s

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