

A Clinical Audit: Intrapartum Care in Third Stage of Labor

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Abstract

Introduction: The third stage of labor is the time from the birth of the baby to the expulsion of the placenta and membranes. Management is normally categorized into two types; active management and physiological management. Active management of the third stage involves a package of care comprising the following components: Routine use of uterotonic drugs, deferred clamping, and cutting of the cord controlled cord traction after signs of separation of the placenta. Most common complications of the third stage of labor are postpartum hemorrhage and retained placenta.

Aims and Objectives: The present clinical audit aims to improve the care of healthy women and their babies during the third stage of child and to review the practices regarding the third stage of labor and to develop and implement action plan regarding management strategies.

Materials And Methodology: The audit was carried out on 218 pregnant women admitted in Rajarajeswari Medical College and Hospital from April 2018 to September 2018. The inclusion criteria, exclusion criteria, and data collection on the excel sheet were based on the National Institute for Health and Care Excellence (NICE) guidelines.

Results: Among 218 cases, vaginal blood loss was recorded in 181 (83%) cases whereas the color, respiration, and general condition were recorded in all 218 cases. In all 218 cases, active management of the third stage was carried out, and decision regarding the same was recorded. The time of cord clamping was recorded in only 6% of the cases. The management of postpartum hemorrhage and retained placenta met audit standard in all 218 cases.

Conclusion and Recommendations: The present clinical audit suggests that there is a need to follow specific guidelines and treatment strategies to avert the complications. Recording of vaginal blood loss in all cases, instructions for the compulsory recording of the cord clamping time following the birth of a baby and continue to follow the remaining steps according to the NICE guidelines to reduce the complications of the third stage of labor.

Key words: National Institute for Health and Care Excellence guidelines, Postpartum hemorrhage, Uterotonics

INTRODUCTION

The third stage of labor is the time from the birth of the baby to the expulsion of the placenta and membranes. "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 min to, become

abnormal and successful delivery can turn swiftly to disaster." Management of the third stage is categorized into two types: Active management and physiological management.

Active management of the third stage involves the following components: Routine use of uterotonic drugs, deferred clamping, and cutting of the cord controlled cord traction after signs of separation of the placenta.^[1] Physiological management of the third stage involves the following components: No routine use of uterotonic drugs, no clamping of the cord until pulsation has stopped, delivery of the placenta by maternal effort.

Most common complications of the third stage of labor are postpartum hemorrhage, retained placenta, and uterine

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inversion. Postpartum hemorrhage (PPH) is the loss of >500 ml of blood following delivery of the baby. Most bleeding comes from where the placenta was attached to the uterus and is bright or dark blood and usually thick. PPH occurs when the uterus fails to contract well, usually due to partially or completely separated placenta or atonic uterus. Retained placenta is when placenta remains inside the uterus for longer than 30 minutes after the delivery of baby. Uterine inversion when the uterus is pulled “inside out” as the baby or the placenta is delivered and partly emerges through the vagina.

Active management of the third stage of labor (AMTSL) involves interventions to assist in the expulsion of the placenta with the intention to prevent or decrease blood loss and minimize the complications of the third stage of labor. Advise the woman to have active management of

the third stage, because it is associated with a lower risk of a PPH and/or blood transfusion. For active management, administer 10 IU of oxytocin by intramuscular injection with the birth of the anterior shoulder or immediately after the birth of the baby and before the cord is clamped and cut. Use oxytocin as it is associated with fewer side effects than oxytocin plus ergometrine. After administering oxytocin, clamp and cut the cord: Do not clamp the cord earlier than 1 min from the birth of the baby unless there is concern about the integrity of the cord or the baby has a heart rate <60 beats/min that is not getting faster. Clamp the cord before 5 min to perform controlled cord traction as part of active management.

After cutting the cord, control cord traction performed as a part of active management of labour. It is performed only after administration of oxytocin and witnessing signs of placental separation. Record the timing of cord clamping in both active and physiological management.

In case of postpartum hemorrhage, bolus of one of the following as first-line treatment for PPH oxytocin (10 IU intravenous) or ergometrine (0.5 mg intramuscular) or combined oxytocin and ergometrine (5 IU/0.5 mg intramuscular) as the first line of treatment. If the bleeding persists, repeat bolus dose of intravenous oxytocin or intramuscular ergometrine or combined oxytocin and ergometrine intramuscularly. Other drugs such as misoprostol, oxytocin infusion, and carboprost (intramuscular) are also used. Adjuvants such as tranexamic acids can also be administered. If the hemorrhage still persists then evaluation under anesthesia should be considered. Balloon tamponade is considered before proceeding with surgical options.

In case retained placenta, vaginal examination to assess the need for manual removal of placenta and manual removal of the placenta under anesthesia is carried out. All the above-mentioned steps, pf active management is as per the National Institute for Health and Care Excellence (NICE) guidelines.^[1]

MATERIALS AND METHODOLOGY

The audit was carried out on 218 pregnant women admitted in the Department of Obstetrics in Rajarajeswari Medical College and Hospital from April 2018 to September 2018. The inclusion and exclusion criteria were based on the NICE guidelines for clinical audit in intrapartum care in the third stage of labor.

Inclusion Criteria^[1]

1. Healthy women receiving intrapartum care during the third stage of labor.

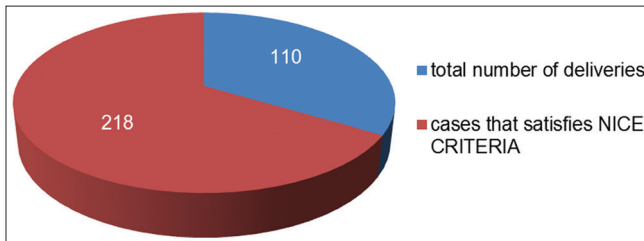


Figure 1: Total number of deliveries and number of cases included in the study

Table 1: Audit results

Audit standards	Audit results
Observations in the third stage	
1. All women in the third stage of labor have the following observations recorded: Their general physical condition, as shown by their color, respiration, and their report of how they feel vaginal blood loss	83% 181/218
Active and physiological management of the third stage	
2. All women have documented in their records the decision that is agreed with the woman about active or physiological management of the third stage of labor	100% 218/218
3. All women who have active management of the third stage of labor have 10 IU of oxytocin	100% 218/218
4. All women have the time the cord was clamped recorded in their records	6% 14/218
5. All women who have active management of the third stage of labor have the cord clamped no earlier than 1 min from the birth of the baby and no later than 5 min	0% 0/218
Retained placenta	
6. All women with a retained placenta have intravenous access secured	100% 11/11
7. Women are given intravenous oxytocic agents to deliver a retained placenta only if they are bleeding excessively	82% 9/11
8. All women for whom uterine exploration is necessary to have arrangements made for urgent transfer to an obstetric unit	% 0/0
9. All women undergoing uterine exploration or manual removal of the placenta are given anesthesia	100% 2/2

Exclusion Criteria^[1]

The following criteria were excluded from the study:

1. Women in suspected or confirmed preterm labor (before 37 weeks of gestation)
2. Women with an intrauterine fetal death
3. Women with coexisting severe morbidities such as pre-eclampsia (high blood pressure of pregnancy) or diabetes.
4. Women who have multiple pregnancies
5. Women with intrauterine growth restriction of the fetus.
6. Women with labor induced
7. Women who have cesarean birth
8. Women with breech presentation.

Data collection was done using a printed form, and the findings were tabulated into the excel sheet of clinical audit tool third stage of labor from NICE guidelines.

The tool includes:

1. Clinical audit standards based on the NICE guideline for intrapartum care.
2. A data collection sheet in which audit data can be entered.
3. A clinical audit report that provides basic information about the audit and automatically displays the audit results.
4. An action plan template.
5. An appendix containing a printable data collection form.

The data collection sheet includes recording of the general physical condition, as shown by their color, respiration, and their report of how they feel and vaginal blood loss. The vaginal blood loss was estimated by placing a shallow bedpan below the mother's buttocks and then weighs the collected blood, along with blood that has soaked into any pads and material. This is referred to as an indirect method.^[1] The mode of management whether active or physiological was noted. If active the use of oxytocin or any other uterotonics were recorded. Timing of cord clamping and delivery of placenta noted. Complications such as PPH (postpartum hemorrhage) and retained placenta if observed were noted and mode of management was recorded. The above data were tabulated into the clinical audit tool on an excel sheet. The results were generated automatically on the excel sheet provided by NICE.

Below is the printable data collection sheet used for recording patient details and steps during the third stage of labor.^[1]

RESULTS

Out of 1010 deliveries conducted in Rajarajeswari Medical College during the study period of 6 months, 218 cases satisfied the criteria for clinical audit tool according to the NICE guidelines.

Among the 218 deliveries, the woman's general physical condition, as shown by her color, respiration and her report of how she feels was recorded in all the 218 cases. Vaginal blood was recorded by the indirect method in 181 cases which were 83% of the study population. Thus, only 83% of the patient care met audit standards 1. The decision about the management of the third stage of labor was recorded in all 218 cases which were 100% and met the standards of audit 2. All 218 patients had AMTSL and 218 of them were given injection oxytocin 10 IU intramuscularly immediately after delivery of anterior shoulder. 100% of the cases met audit standard 3. The time of cord clamping was recorded only in 14 cases which accounted for 6% of the cases. Thus, only 6% of the cases met audit standards 4. As only early cord clamping in cases of Rh-negative pregnancy were recorded, none of the cases met audit standards of 5. The third stage of labor was completed within 30 min in 211 cases that are in 95% of the cases. The remaining 11 cases needed further intervention and the intravenous line was secured in all 11 cases. In 82% of the above cases, intravenous oxytocin was given whereas in the remaining 2 cases methylergometrine was given. Among the 11 cases, 9 of them had excessive bleeding and needed oxytocics for further management. The remaining 2 cases had retained placenta and needed manual removal of the placenta under anesthesia. Hence, the audit standards of 6, 7, and 9 were met in all the 11 cases with complications. The audit standards of 8 were met in all the cases as the patients were already in the obstetric unit [Table 1 and Figure 1].

DISCUSSION

The main aim of care during the third stage of labor is to prevent PPH and retained placenta. In the present audit, the audit one standards were met in 83% of the patients. Among the 218 deliveries, the woman's general physical condition, as shown by her color, respiration and her report of how she feels was recorded in all the 218 cases. Vaginal blood was recorded in 181 patients. Hemorrhage remains one of the leading causes of maternal mortality. In developing nations, where the vast majority of maternal deaths occur, the problem is exponentially greater. Postpartum hemorrhage has traditionally been defined as an estimated blood loss exceeding 500 mL. Underestimation of peripartum blood loss and delayed blood component therapy seems to be common factors

in many cases of avoidable hemorrhage-related maternal mortality. Inaccurate blood loss assessment can result in significant adverse sequelae and delay in the management of postpartum hemorrhage. In the present audit recording of the vaginal blood loss was missed in 13% of the patients. This can be improved by strict documentation and teaching the proper and convenient method of estimating the blood loss for the nurses, interns, and residents in the delivery room. This can help to achieve the target of 100% for audit standard 1.

The decision regarding the management of the third stage of labor was recorded in 100% of the cases. All 218 patients consented for active management of labor with intramuscular oxytocin injection after delivery of anterior shoulder and placental expulsion by controlled cord traction. Active management is preferred due to shortening of the third stage of labor and reduces the risk of postpartum hemorrhage and the need for blood transfusion. In a study conducted by Prendiville *et al.*^[2] in 4709 women in the third stage of labor reduction in the incidence of PPH from 7 to 5% under physiological management to 5% under active management and also it shortened the third stage of labor and need for blood transfusion. In another study conducted by Begley *et al.*^[3] in 2010, on 6486 women active management reduced the average risk of maternal primary hemorrhage (>1000 ml) (risk ratio [RR] 0.34, 95% confidence interval (CI) 0.14–0.87, three studies, 4636 women) and of maternal hemoglobin <9 g/dl following birth (RR 0.50, 95% CI 0.30–0.83, two studies, 1572 women) for women irrespective of their risk of bleeding. Intramuscular oxytocin was administered in all 218 cases, and hence audit three standards were met. In a study conducted by Elbourne *et al.*^[4] in 2001, on 3000 women in the hospital, prophylactic oxytocin showed benefits reduced blood loss (relative risk RR for blood loss >500 ml 0.50; 95% CI 0.43, 0.59) and need for therapeutic oxytocics compared to no uterotonic. Furthermore, oxytocin has fewer side effects compared to other uterotonic.

The time of cord clamping was recorded in only 14 (6%) of the cases and failed to meet the audit standard 5. The timing of cord clamping is very important. Early cord clamping in term newborns results in a decrease of 20–40 mL/kg of blood, which is equivalent to 30–35 mg of iron. A delay in clamping, causing increased neonatal blood volume, may lead to complications such as respiratory distress, neonatal jaundice, and polycythemia. According to the NICE guidelines, cord clamping should be after 1 min and before 5 min after the birth of the baby. A systematic review and meta-analysis comparing cord clamping done early (<1 min after delivery of the infant) and late (at least 2 min after delivery) showed that late

clamping conferred a physiological benefit to the newborn that extended up to 6 months into infancy. Advantages included prevention of anemia over the first 3 months of life and enhanced iron stores and ferritin concentration for up to 6 months. There was no increase in respiratory distress, defined as tachypnea, or grunting. Neonates were at increased risk of asymptomatic polycythemia. There was no significant difference between the early and late groups in bilirubin levels and proportions of infants receiving phototherapy. A 2004 Cochrane Review by Rabe *et al.*^[5] and a prospective study by Ibrahim *et al.* demonstrated that delaying cord clamping by 30–120s resulted in less need for transfusion due to anemia and less intraventricular hemorrhage. Therefore, the residents and nurses working in the delivery room should be given instructions for cord clamping as per the NICE guidelines that are all women who have active management of the third stage of labor have the cord clamped no earlier than 1 min from the birth of the baby and no later than 5 min and document the same in the patient records. This helps in reducing the neonatal complications as mentioned in the above studies. Exception being when there is concern about the integrity of the cord or the baby has a heartbeat <60 beats/min that is not getting faster and where a woman requests that the cord is clamped and cut later than 5 min.

In the present study out of 218 cases, in 207 cases AMTSL lasted for >30 min. Among the 11 cases, 9 of them had postpartum hemorrhage and 2 of them had retained placenta. Out of 9 cases, 7 of them were given intravenous oxytocin to reduce PPH and the remaining 2 cases were given methylergometrine. The intravenous access was secured in all 11 cases. The cases with retained placenta were managed under anesthesia by manual removal of placenta. The present study met with the audit standards 6, 7, and 9. The audit standard 8 was an exception as the patient was already in obstetric unit. According to the NICE guidelines, if a woman has a PPH call for help and gives immediate clinical treatment. First by emptying of the bladder followed by a uterine massage, uterotonic drugs, intravenous fluids, and controlled cord traction if the placenta has not yet been delivered. Continuously assess blood loss and the woman's condition, and identify the source of the bleeding and give supplementary oxygen. Administer a bolus of one of the following as first-line treatment for PPH: Oxytocin (10 IU intravenous) or ergometrine (0.5 mg intramuscular) or combined oxytocin and ergometrine (5 IU/0.5 mg intramuscular). Offer second-line treatment for PPH if needed. No particular uterotonic drug can be recommended over any other; options include repeat bolus of oxytocin (intravenous)/ergometrine (intramuscular, or cautiously intravenously)/combined oxytocin and ergometrine (intramuscular)/misoprostol/

oxytocin infusion/carboprost (intramuscular). Adjuvants like tranexamic acid can also be used. If the hemorrhage continues examination under anesthetic should be considered to ensure that the uterus is empty and repair any trauma consider balloon tamponade before surgical options.

CONCLUSION

A major strength of regular clinical audits is that they bring practitioners together frequently to discuss the management of severe cases and to define relevant improvement objectives appropriate to the local context and based on the audit's findings. The present clinical audit suggests that room for improvement exists. There is a need to follow specific guidelines and treatment strategies to avert the complications during the third stage of labor. Severe PPH can lead to poor health for the mother (maternal morbidity), and sometimes even death, particularly in low- and middle-income countries. If excessive blood loss is identified early, interventions to help stem the blood flow can be started sooner, and improve health outcomes for the mother.

RECOMMENDATIONS

Recording of vaginal blood loss in all cases in the third stage of labor by the indirect method and managing the cases based on the NICE guidelines. Instructions to the residents and midwives for the compulsory recording of the timing of cord clamping following the birth of the baby. Updating the residents and midwives regarding the newer recommendations and strategies to prevent complications of the third stage of labor and for the safe delivery of the baby.

REFERENCES

1. NICE Guidelines: Care in the Third Stage of Labour; 2018.
2. Prendiville WJ, Harding JE, Elbourne DR, Stirrat GM. The bristol third stage trial: Active versus physiological management of third stage of labour. *BMJ* 1988;297:1295-300.
3. Begley CM, Gyte GM, Murphy DJ, Devane D, McDonald SJ, McGuire W. Active versus expectant management for women in the third stage of labour. *Cochrane Database Syst Rev* 2010;7:CD007412.
4. Elbourne DR, Prendiville WJ, Carroli G, Wood J, McDonald S. Prophylactic use of oxytocin in the third stage of labour. *Cochrane Database Syst Rev* 2001;4:CD001808.
5. Rabe H, Reynolds GJ, Diaz-Rosello JL. Early versus delayed umbilical cord clamping in preterm infants. *Cochrane Database Syst Rev* 2004;4:CD003248.

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