International Journal of Innovative Research in Medical Science (IJIRMS)
Volume 09, Issue 07, July 2024,
https://doi.org/10.23958/ijirms/vol09-i07/1914

Original article

Adherence to Palestinian Guidelines in Active Management of the Third Stage of Labor to Prevent Postpartum Hemorrhage: A Study at Shifa and Nasser Medical Complexes in Gaza Strip

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Received 08 June 2024; Accepted 07 July 2024; Published 13 July 2024

Abstract

Background: Postpartum hemorrhage (PPH) is a leading cause of maternal morbidity and mortality. This study assesses adherence to Palestinian guidelines for the active management of the third stage of labor to prevent PPH in the Gaza Strip's Al-Shifa and Nasser Medical Complexes. ***Methods:*** A prospective, descriptive, and cross-sectional study was conducted. A convenience sample of 50 parturients who met the inclusion criteria and agreed to participate was recruited. Data were collected at delivery through close observation of vaginal births. Risk factors for PPH and adherence to active management protocols were documented using standardized checklists and questionnaires. Descriptive statistics summarized the findings, and ethical considerations were strictly adhered to. ***Results:*** The mean age of participants was 25.9 years (SD: 5.86). Key risk factors included 66% (33 out of 50) having a BMI above normal, 8% (4 out of 50) not receiving antenatal care, and 48% (24 out of 50) having anemia. Previous obstetric complications were noted: 10% (5 out of 50) had a history of PPH, 16% (8 out of 50) had previous cesarean sections, and 14% (7 out of 50) delivered babies with a birth weight over 4.5 kg. All participants received Oxytocin 10-unit IM or IV with the delivery of the anterior shoulder or immediately after fetal delivery. However, 48% (24 out of 50) did not undergo delayed cord clamping for 1-3 minutes, primarily due to fetal distress. Controlled cord traction and initial uterine massage were performed in all cases, but repeated uterine massage every 15 minutes for the first hour was omitted in 54% (27 out of 50) of cases due to staff shortages. Only 6% (3 out of 50) received Methergine IM due to its unavailability, and 41% (20 out of 50) were not given Oxytocin 40 units. ***Conclusion:*** The study identified significant adherence to certain PPH prevention protocols, but highlighted gaps in practice, such as inconsistent delayed cord clamping and repeated uterine massage, primarily due to resource constraints and staffing issues. Addressing these gaps by ensuring the availability of necessary medications, improving staffing levels, and reinforcing adherence to guidelines is crucial for enhancing maternal health outcomes in these settings.

Keywords: ***Postpartum Hemorrhage, Active Management, Maternal Health, Gaza Strip, Obstetric Guidelines.***

Introduction

Postpartum hemorrhage (PPH) is associated with the third stage of labor (TSL), which is the shortest, most crucial, and dangerous time of delivery [1-3]. In order to facilitate the delivery of the placenta, active management of the third stage of labor (AMTSL) comprises a package of therapies that attempt to stimulate uterine contractions and avoid primary postpartum hemorrhage (PPH) [4,5]. Common components of AMTSL include administering uterotonic medications within 1 minute after the baby's delivery, using controlled cord tension (CCT) to release the placenta, and massaging the uterus every 15 minutes during the first two hours [6,7].

The first line of defense against PPH is the use of uterotonic medications, which decrease the likelihood of PPH by 40% [8,9]. The second part of managing a retained placenta is having a trained birth attendant provide CCT as the first intervention [6]. A nearly 50% decrease in PPH was seen with CCT as compared to expectant care [10]. Lastly, when the placenta and membranes are delivered, it is recommended that all laboring moms massage the uterine fundus immediately and again every 15 minutes for the first two hours, or until the uterus remains well-contracted [11]. Theoretically, massage may stop bleeding by triggering uterine contractions, which might happen by activating local prostaglandin production [12]. The bulk of maternal fatalities occur within the hours following placenta delivery, although most nations have poor rates of initial fundal massage and follow-up palpation [13]. This suggests that women are not being adequately monitored during this time.

Eighty percent of the maternal mortality and morbidity caused by uterine atony is attributable to PPH [3,10, 14,15]. Most maternal fatalities occur within four hours after giving birth, and

PPH accounts for 27.1% of those 295,000 avoidable maternal deaths [16-19]. Many healthcare institutions do not routinely provide AMTSL, even though it has been demonstrated to be beneficial and may be administered by lower-level healthcare personnel. The World Health Organization has said that all women should be administered AMTSL by trained medical professionals following delivery as a key intervention to reduce postpartum hemorrhage [20,21]. About 1.4 million women each year miss out on chances to avoid avoidable postpartum hemorrhage because they do not get proper AMTSL practice during labor. The accurate usage of AMTSL was extremely low, with an average of 9% worldwide, according to the definitions provided by the International Federation of Gynecology and Obstetrics (FIGO) and the International Confederation of Midwives (ICM) [22].

Access to potentially lifesaving maternity care is severely restricted or nonexistent for women in many low-income countries (LMIC) when they begin bleeding. In most situations, the evidence-based therapeutic practice of AMTSL may avoid uterine atony, the most prevalent cause of postpartum hemorrhage (PPH), which happens when the uterine muscles fail to contract after delivery. However, a major problem with the quality of maternity care is that AMTSL is not routinely used in many health institutions around the globe [23].

In 2017, there were 295 000 maternal fatalities worldwide, with 196,000 of them women losing their lives in sub-Saharan Africa (sSA). In 2017, almost 86% (254 000) of the predicted worldwide maternal fatalities occurred in Southern Asia and SSA. Of these, 66% occurred in South Africa alone, with a maternal mortality ratio (MMR) of 542 per 100,000 live births [24].

Only 26% of the almost 1.3 million pregnant women in LMIC get assistance from trained birth attendants. Skilled birth attendants were present for only 29.2% of births, according to a community-based cross-sectional research [25]. Rates of AMTSL in LMIC were shown to vary between 16.7% and 32.3% in other investigations [26-28]. Many chances to avoid PPH are missed due to such low rates [29]. The availability of guidelines, the educational level of health care workers, and the kind of institution all had a role in the variation in AMTSL procedures [22,29-32]. Good AMTSL practice was connected with care-related characteristics as well as sociodemographic variables, training exposure, and job experience [33-40]. We are unaware of any research that has taken place in Gaza Strip. Therefore, the purpose of this research was to examine how often and for what reasons maternity care professionals in Gaza Strip use AMTSL. Nasser and Shifa Medical Complexes are the largest in Gaza Strip and serve about half of population in terms of all medical services.

Methods

Study Design

A prospective, descriptive, and cross-sectional study was conducted to assess adherence to Palestinian guidelines in the active management of the third stage of labor.

Study Setting

The study took place at Shifa and Nasser Medical Complexes in the Gaza Strip.

Population

The target population comprised all parturients delivering at Shifa and Nasser Medical Complexes who met the inclusion criteria and agreed to participate.

Sample and Sampling

A convenience sampling method was utilized to recruit participants. All eligible parturients who consented to participate during the study period were included.

Inclusion and Exclusion Criteria

Inclusion criteria for the study were parturients aged 18 years and above, who delivered vaginally at Shifa and Nasser Medical Complexes, and who provided informed consent to participate. Participants had to be in the third stage of labor at the time of observation and willing to allow the research team to closely observe and record the management process. Additionally, only those who adhered to the Palestinian guidelines for active management of the third stage of labor were included.

Exclusion criteria involved parturients with a history of high-risk pregnancies, those who underwent cesarean sections, and those who experienced complications requiring immediate medical intervention that deviated from the standard guidelines. Women who did not provide consent or withdrew from the study at any point, and those with incomplete data due to early discharge or transfer to another facility, were also excluded from the analysis.

Data Collection

Data were collected at the time of delivery through close observation of vaginal deliveries by the research team. Information was recorded regarding the adherence to guidelines for the active management of the third stage of labor.

Instruments

The data collection instruments included standardized observation checklists and questionnaires administered to pregnant women to gather demographic and clinical information (Annex 1).

Statistical Analysis

Data were entered to excel sheet and then analyzed using statistical package for social sciences (SPSS) version 23.0. Descriptive statistics, such as means and standard deviations, were used to summarize continuous variables. Frequencies and percentages were used for categorical variables. Inferential statistics, including chi-square tests and t-tests, were employed to examine associations between variables of interest. Statistical significance was set at a p-value of <0.05.

Ethical Consideration

The study was conducted in accordance with the principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the relevant ethics committees of the medical complexes. Informed consent was obtained from all participants prior to their inclusion in the study. Participant confidentiality and privacy were maintained throughout the study, with data anonymized and securely stored.

Results

The study included 50 participants (25 per each hospital). The assessment of patients' risk factors for postpartum hemorrhage (PPH) revealed several key findings (Table 1). The mean age of the participants was 25.9 years (SD: 5.86). A significant portion of the sample, 66% (33 out of 50), had a body mass index (BMI) above normal (>24.9 kg/m2). Additionally, 8% (4 out of 50) did not receive antenatal care, and 10% (5 out of 50) had a previous history of PPH. Previous cesarean sections were reported in 16% (8 out of 50) of the cases, while 4% (2 out of 50) had a history of gynecological operations. Multiple gestations were noted in 6% (3 out of 50), and 14% (7 out of 50) had delivered babies with a birth weight over 4.5 kg. Antepartum hemorrhage (APH) in the current pregnancy was

reported by 12% (6 out of 50) of participants. None had a history of ruptured uterus during childbirth, while 2% (1 out of 50) had a low-lying or previa placenta. Induced pregnancies were observed in 20% (10 out of 50), with 16% (8 out of 50) being post-term and 12% (6 out of 50) pre-term. Chorioamnionitis affected 4% (2 out of 50) of the participants, and 6% (3 out of 50) had polyhydramnios. There were no cases of cholestasis, but 2% (1 out of 50) had a history of coagulopathy, and 4% (2 out of 50) were on anticoagulants. Anemia was prevalent in 48% (24 out of 50) of the women.

Table 1: Patients' Risk Factors for Postpartum Hemorrhage (PPH)

Risk Factor	Percentage (%)
BMI above normal	66
No antenatal care	8
Previous history of PPH	10
Previous cesarean section	16
Previous gynecological operations	4
Multiple gestations	6
Babies with birth weight >4.5 kg	14
Antepartum hemorrhage (APH) in current pregnancy	12
Low-lying or previa placenta	2
Induced pregnancies	20
Post-term pregnancies	16
Pre-term pregnancies	12
Chorioamnionitis	4
Polyhydramnios	6
Coagulopathy history	2
Anticoagulant use	4
Anemia	48

Regarding the active management of the third stage of labor, all cases received an Oxytocin 10-unit IM or IV injection with the delivery of the anterior shoulder or immediately after fetal delivery (Table 2). Delay cord clamping for at least 1-3 minutes was not performed in 48% (24 out of 50) of the cases. Controlled cord traction (CCT) was used to deliver the placenta in all instances, and uterine massage was performed immediately after delivery to ensure uterine contraction. However, repeated uterine massage every 15 minutes during the first hour was not done in 54% (27 out of 50) of cases. All procedures, medications given, and assessment findings were documented. Methergine IM (1 ml: 0.25 mg) was administered to 6% (3 out of 50) of the participants after delivery, and examination for complete placenta delivery was conducted in all cases. Oxytocin 40 units were not administered to 82% (41 out of 50) of the cases. The primary reasons for not performing delayed cord clamping were due to fetal distress requiring neonatal ICU referral. The unavailability of Methergine in the hospital was cited as the reason for not administering it to high-risk cases. The deficiency in medical staff was the main reason for not performing repeated uterine massages every 15 minutes.

Table 2: Active Management of the Third Stage of Labor

Procedure/Action	Percentage (%)
Oxytocin 10-unit IM or IV	100
Delayed cord clamping (not performed)	48
Controlled cord traction (CCT)	100
Uterine massage after delivery	100
Repeated uterine massage (not performed)	54
Methergine IM (administered)	6
Examination for complete placenta delivery	100
Oxytocin 40 units (not administered)	82

Discussion

This research sheds light on the extent to which the Shifa and Nasser Medical Complexes in Gaza follow to Palestinian standards for the active care of the third stage of labor in order to avoid postpartum hemorrhage (PPH). The parturients' susceptibility to PPH is highlighted by the high incidence of risk factors, such as an increased body mass index (BMI), absence of prenatal care, and prior obstetric problems. Targeted treatments are even more urgently needed given the participants' average age of 25.9 years and the substantial number of 48% who suffer from anemia.

The delivery of Oxytocin, controlled cord tension (CCT), and early uterine massage essential components of PPH prevention was adhered to at an excellent rate. The effectiveness of these approaches in reducing the occurrence of PPH has been well demonstrated. On the other hand, the research showed that other important procedures, such delayed cord clamping (DCC) and repeated uterine massage, were not followed to the letter. In 48% of instances, neonatal intervention was necessary because of foetal discomfort, which led to the absence of DCC. This brings attention to a possible area where the procedure might be adjusted to prioritize the well-being of the fetus while making the most of the advantages of DCC.

Results showed that 40.3% [95% CI: 34.5%-46.1%] of MCPs were performing AMTSL well, according to a study that sought to evaluate the practice and related characteristics among LMIC maternity care providers in public health institutions. As a result, 60% of giving birth mothers face the real risk of potentially fatal hemorrhage [33]. Although it is higher than in other areas of Ethiopia (such as Hawassa city, Kembata Tembaro zone, Amhara region, Sidama zone, and Amhara region) [26-28,38,40-42], this finding is consistent with previous study in Ethiopia (Tigray 43.3%), Nigeria (41.7%), and Sudan (26.7%). The disparity could be due to factors such as time, education, and training. Only 20% of Sudanese participants had received training; those who had all held diplomas and had worked for less than three years; 29% in Sidama; 33.3% in Hawassa; 74% in Sidama had diplomas; and 33% in Hawassa had good knowledge of AMTSL. Nevertheless, our study's participants had a wealth of knowledge: 40% had more than six years of experience, 50% held master's degrees, and more than half had a strong grasp of AMTSL.

Compared to other research conducted in LMIC, the percentages of outstanding AMTSL practice in Amhara (61.2%), Gamo Gofa (48.1%), and Addis Ababa (47%) were higher. Unlike the Gamo-Gofa study, which evaluated AMTSL practice over the course of three visits to the same provider, a recent study [33] only utilized one observation per provider in order to remove learning between the first two sessions. There was an instrument-and parameter-based cutoff for good AMTSL practice in Amhara [33]. This was based on several methodological problems. While other studies included all tiers of public health facilities, the Addis Abeba study used convenience sampling and included just referral hospitals[33].

Statistical analysis of the literature found a correlation between AMTSL practice and factors such as having a birth assistant present, high levels of education, training, and good AMTSL understanding [33]. There is a statistically significant correlation between training and successful AMTSL practice, according to research in Ethiopia and Kenya [31,36,39,44,45]. Getting training in this area may help them demonstrate that they have done AMTSL and can recall how to execute it in a real-life scenario. Another way in which training influences people's real practice of AMTSL is by keeping them updated on the components of AMTSL.

Studies in Ethiopia, Kenya, and Nigeria have shown that successful practices are more likely to result from a comprehensive grasp of AMTSL [27,36,38,39,43]. According to ICM/FIGO, spreading awareness of AMTSL and its components increases the likelihood that it will be put into practice. This is due to the fact that individuals will have a greater incentive to apply what they have learned, which will eventually result in better performance [33].

Along with MCPs, birth assistants increased the likelihood of good AMTSL practice. Supporting this are results from studies conducted in Nigeria and Ethiopia [28,38]. Helpers' active engagement is critical for the successful execution of AMTSL in all obstetric procedures when appropriate care can only be given by a collaborative effort. Consistent with other studies in LMIC, especially in the areas of Tigray and Addis Abeba, our study found that MCPs with greater levels of schooling had stronger AMTSL practices [39,40].

Several limitations are included in this investigation. The capacity to prove causation between the active management approaches and outcomes is limited by the prospective, descriptive, and cross-sectional design. It is possible that the results cannot be applied to other populations or areas due to the convenience sample and the fact that they only included parturients from two hospital complexes in Gaza. The data acquired may not be as accurate as it may be due to observer and responder biases introduced by relying on self-reported data and direct observation. Furthermore, not all possible confounding variables were taken into account in the research. These factors might have affected the findings, including participants' socioeconomic level, their ability to obtain healthcare, and their own health practices. Further confounding the interpretation of the data are personnel shortages and the unavailability of specific prescriptions, both of which indicate that systemic difficulties could have affected the adherence to standards.

Conclusion

The study highlights several critical risk factors and practices related to postpartum hemorrhage (PPH) in the Gaza Strip's Shifa and Nasser Medical Complexes. A significant portion of participants exhibited risk factors such as high BMI, lack of antenatal care, and previous obstetric complications. Despite the adherence to key elements of the active management of the third stage of labor, including the use of Oxytocin and uterine massage, gaps were identified in the consistent application of delayed cord clamping and repeated uterine massage due to fetal distress and staffing deficiencies. The unavailability of certain medications, like Methergine, further compromised PPH management. These findings underscore the need for improved resource availability, staff training, and protocol adherence to enhance maternal health outcomes in these settings.

List of Abbreviations

PPH: Postpartum Hemorrhage
AMTSL: Active Management of the Third Stage of Labor
BMI: Body Mass Index
SD: Standard Deviation
ICU: Intensive Care Unit
CCT: Controlled Cord Traction
IM: Intramuscular
IV: Intravenous
LMIC: Low- Middle-Income Countries

Declaration

Ethical Approval and Consent to Participate

This study was conducted in accordance with the principles outlined in the Declaration of Helsinki. Ethical approval was obtained from the department of human resources at ministry of health, Gaza. Informed consent was obtained from all participants prior to their inclusion in the study. Participant confidentiality and privacy were maintained throughout the study duration. Data were anonymized and stored securely to protect participant confidentiality.

Consent for Publication

Author has consented for publication

Availability of Data

Data and other supporting documents are available upon reasonable request.

Competing Interest

Author has no competing interest.

Funding

None

Author's Contribution

Study conceptualization, data analysis, manuscript writing were all done by DA while data collection process was completed by RA, SG, EE and MS.

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