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WHO

recommendations for the prevention and treatment of postpartum haemorrhage

Introduction

Postpartum Haemorrhage (PPH) is commonly defined as a blood loss of 500 ml or more within 24 hours after birth. PPH is the leading cause of maternal mortality in low-income countries and the primary cause of nearly one quarter of all maternal deaths globally. Most deaths resulting from PPH occur during the first 24 hours after birth: the majority of these could be avoided through the use of prophylactic utero-tonics during the third stage of labour and by timely and appropriate management.

Improving health care for women during childbirth in order to prevent and treat PPH is an essential step towards the achievement of the Millennium Development Goals. The primary objective of this guideline therefore is to provide a foundation for the strategic policy and programme development needed to ensure the sustainable implementation of effective interventions for reducing the global burden of PPH.

Background

Postpartum Haemorrhage (PPH) is commonly defined as a blood loss of 500 ml or more within 24 hours after birth, while severe PPH is defined as a blood loss of 1000 ml or more within the same timeframe. PPH affects approximately 2% of all women who give birth: it is associated not only with nearly one quarter of all maternal deaths globally but is also the leading cause of maternal mortality in most low-income countries.

PPH is a significant contributor to severe maternal morbidity and long-term disability as well as to a number of other severe maternal conditions generally associated with more substantial blood loss, including shock and organ dysfunction.

Uterine atony is the most common cause of PPH, but genital tract trauma (i.e. vaginal or cervical lacerations), uterine rupture, retained placental tissue, or maternal coagulation disorders may also result in PPH.

Although the majority of women who experience PPH complications have no identifiable clinical or historical risk factors, grand multiparity and multiple gestation are associated with an increased risk of bleeding after birth. PPH may be aggravated by pre-existing anaemia and, in such instances, the loss of a smaller volume of blood may still result in adverse clinical sequelae.

During the second half of the 20th century, a package of interventions performed during the third stage of labour became the cornerstone for the prevention of PPH. This approach became known as the "active management of the third stage of labour" and consisted initially of the following components:

1-the administration of a prophylactic uterotonic after the delivery of a baby,

2-early cord clamping and cutting, and

3- the controlled traction of the umbilical cord.

4-Uterine massage is also frequently included as part of the active management of the third stage of labour.

In contrast to active management, expectant management involves instead waiting for signs of placenta separation and allows for the placenta to be delivered spontaneously, or aided by nipple stimulation or gravity. Compared with expectant management, the active management of the third stage of labour is associated with a substantial reduction in the occurrence of PPH.

It is generally assumed that by preventing and treating PPH, most PPH-associated deaths could be avoided.

The prevention and treatment of PPH are therefore vital steps towards improving the health care of women during childbirth and the achievement of the Millennium Development Goals. To reach these objectives, health workers in developing countries should be given access to appropriate medications and be trained in procedures relevant to the management of PPH. Countries also need evidence-based guidance to inform their health policies and improve their health outcomes.

Given the availability of new scientific evidence related to the prevention and treatment of PPH, the aim of this document is to revise previous WHO recommendations for the prevention and treatment of PPH and to add new recommendations. The primary goal of this guideline is to provide a foundation for the implementation of strategic policy and programme developments for interventions shown to have been effective in reducing the burden of PPH.

Health professionals responsible for developing national and local protocols and health policies constitute the main target audience of this document. Obstetricians, midwives, general medical ractitioners, health care managers and public health policy-makers, particularly in under-re sourced settings are also targeted.

The guidance provided is evidence-informed and covers topics related to the management of PPH that were selected and prioritized by an international, multidisciplinary group of health care workers, consumers and other stakeholders. This document establishes general principles of PPH care and it is intended to inform the development of protocols and health policies related to PPH. This document is not intended to provide a comprehensive practical guide for the prevention and treatment of PPH.

Recommendations for PPH prevention

The intrinsic contribution of each component of the 'active management of the third stage of labour' was examined in light of new available evidence, and relevant recommendations were made. All women giving birth should be offered uterotonics during the third stage of labour for the prevention of PPH; oxytocin (IM/IV, 10 IU) is recommended as the uterotonic drug of choice. Other injectable uterotonics and misoprostol are recommended as alternatives for the prevention of PPH in settings where oxytocin is unavailable. The importance of controlled cord traction (CCT) was revisited because of new evidence. This intervention is now regarded as optional in settings where skilled birth attendants are available, and is contraindicated in settings where skilled attendants do not assist with births. Early cord clamping is

generally contraindicated. Continuous uterine massage is not recommended as an intervention to prevent PPH in women who have received prophylactic oxytocin, as it may cause maternal discomfort, require a dedicated health professional, and may not lead to a reduction of blood loss. However, surveillance of uterine tonus through abdominal palpation is recommended in all women for early identification of postpartum uterine atony. In summary, the Guideline Development Group (GDG) considered the use of uterotonics as the main intervention within the active management of third stage of labour package. In this context, the use of misoprostol for the prevention of PPH by community health care workers and lay health workers is supported in settings where skilled birth attendants are not present.

The GDG also issued recommendations for reducing blood loss during the third stage of labour in caesarean sections. Oxytocin is the recommended uterotonic drug for the prevention of PPH in caesarean sections. Cord traction is recommended in preference to manual removal when assisting placental delivery in caesarean sections.

Box A: Recommendations for the prevention of PPH

1. The use of uterotonics for the prevention of PPH during the third stage of labour is recommended for all births. (Strong recommendation, moderate-quality evidence)
2. Oxytocin (10 IU, IV/IM) is the recommended uterotonic drug for the prevention of PPH. (Strong recommendation, moderate-quality evidence)
3. In settings where oxytocin is unavailable, the use of other injectable uterotonics (if appropriate ergometrine/methylergometrine or the fixed drug combination of oxytocin and ergometrine) or oral misoprostol (600 µg) is recommended. (Strong recommendation, moderate-quality evidence)
4. In settings where skilled birth attendants are not present and oxytocin is unavailable, the administration of misoprostol (600 µg PO) by community health care workers and lay health workers is recommended for the prevention of PPH. (Strong recommendation, moderate-quality evidence)

5. In settings where skilled birth attendants are available, CCT is recommended for vaginal births if the care provider and the parturient woman regard a small reduction in blood loss and a small reduction in the duration of the third stage of labour as important (Weak recommendation, high-quality evidence)

6. In settings where skilled birth attendants are unavailable, CCT is not recommended. (Strong recommendation, moderate-quality evidence)

7. Late cord clamping (performed after 1 to 3 minutes after birth) is recommended for all births while initiating simultaneous essential newborn care. (Strong recommendation, moderate-quality evidence)

8. Early cord clamping (<1 minute after birth) is not recommended unless the neonate is asphyxiated and needs to be moved immediately for resuscitation. (Strong recommendation, moderate-quality evidence)

9. Sustained uterine massage is not recommended as an intervention to prevent PPH in women who have received prophylactic oxytocin. (Weak recommendation, low-quality evidence)

10. Postpartum abdominal uterine tonus assessment for early identification of uterine atony is recommended for all women. (Strong recommendation, very-low-quality evidence)

11. Oxytocin (IV or IM) is the recommended uterotonic drug for the prevention of PPH in caesarean section. (Strong recommendation, moderate-quality evidence)

12. Controlled cord traction is the recommended method for removal of the placenta in caesarean section. (Strong recommendation, moderate-quality evidence)

Remarks

- Available comparisons are limited, but a significant difference between the benefits of oxytocin and ergometrine is unlikely. These recommendations place a high value on avoiding the adverse effects of ergometrine and assume a similar benefit from using oxytocin and ergometrine for the prevention of PPH.
- Caution should be exercised when opting for ergot derivatives for the prevention of PPH as these drugs have clear contraindications in women with hypertensive disorders. Thus, it is probably safer to avoid the use of ergot derivatives in unscreened populations.
- Misoprostol (600 µg **PO) was regarded by the GDG as an effective drug for the prevention of PPH. How-**ever, the GDG considered the relative benefits of oxytocin compared to misoprostol in preventing blood loss, as well as the increased adverse effects of misoprostol compared to oxytocin. The GDG acknowledged that there is no evidence to show that a 600 µg dose of misoprostol provides greater efficacy over a 400µg µg **dose. Lower doses have a lower side-effect profile but the efficacy of lower doses of miso-**prostol has not been evaluated sufficiently.

Remarks

- Recommendations 5 and 6 are based on a large RCT in which oxytocin 10 IU was used for the prevention of PPH in all participants. Based on this evidence, CCT was regarded as safe when applied by skilled birth attendants as it provides small beneficial effects on blood loss (average reduction of 11 ml on blood loss) and on the duration of the third stage of labour (average reduction of 6 minutes). The decision to implement CCT in the context of a prophylactic uterotonic drug should be discussed by the care provider and the woman herself.
- If ergot alkaloids are used for the prevention of PPH, then CCT to minimize placenta retention is regarded as essential.
- There is insufficient evidence to determine the benefit or risk of CCT when used in conjunction with misoprostol.

- CCT is the first intervention to treat retained placenta, therefore the teaching of CCT in medical and midwifery curricula is essential.
- The evidence base for recommendations for the timing of cord clamping includes both vaginal and caesarean births. The GDG considers this recommendation to be equally important for caesarean sections.
- Delayed clamping should be performed during the provision of essential newborn care. For essential newborn care and resuscitation, please refer to the WHO guidelines on neonatal resuscitation. (10)
- The recommendations for the timing of cord clamping apply equally to preterm and term births. The GDG considers the benefits of delayed clamping for preterm infants to be particularly important.

Box 3: Recommendations for the prevention of PPH in caesarean sections

11. Oxytocin (IV or IM) is the recommended uterotonic drug for the prevention of PPH in caesarean section. (Strong recommendation, moderate-quality evidence)
12. Cord traction is the recommended method for the removal of the placenta in caesarean section. (Strong recommendation, moderate-quality evidence)

Remarks

- The GDG noted that, in terms of blood loss, there was not enough evidence to recommend oxytocin infusion over IV bolus injection. However, due to concerns regarding adverse haemodynamic effects, the GDG considered that if an IV bolus injection is used, a slow injection rate is preferred and a rapid injection rate should be avoided.
- The GDG noted that the combination of an oxytocin infusion after an initial IV bolus of oxytocin after caesarean delivery reduces the need for additional uterotonic agents but does not affect the overall occurrence of major obstetric haemorrhage.
- The GDG noted that carbetocin is associated with a reduction in the use of additional uterotonic agents but with no difference in the occurrence of major obstetric haemorrhage. In addition, the GDG noted that the use of carbetocin is considerably more expensive than oxytocin. This remark is equally applicable to vaginal deliveries.

Box B: Recommendations for the treatment of PPH

13. Intravenous oxytocin alone is the recommended uterotonic drug for the treatment of PPH. (Strong recommendation, moderate-quality evidence)

14. If intravenous oxytocin is unavailable, or if the bleeding does not respond to oxytocin, the use of intravenous ergometrine, oxytocin-ergometrine fixed dose, or a prostaglandin drug (including sublingual misoprostol, 800 µg) is recommended. (Strong recommendation, low-quality evidence)

15. The use of isotonic crystalloids is recommended in preference to the use of colloids for the initial intravenous fluid resuscitation of women with PPH. (Strong recommendation, low-quality evidence)

16. The use of tranexamic acid is recommended for the treatment of PPH if oxytocin and other uterotonics fail to stop bleeding or if it is thought that the bleeding may be partly due to trauma. (Weak recommendation, moderate-quality evidence)

17. Uterine massage is recommended for the treatment of PPH. (Strong recommendation, very-low-quality evidence)

18. If women do not respond to treatment using uterotonics, or if uterotonics are unavailable, the use of intrauterine balloon tamponade is recommended for the treatment of PPH due to uterine atony. (Weak recommendation, very-low-quality evidence)

19. If other measures have failed and if the necessary resources are available, the use of uterine artery embolization is recommended as a treatment for PPH due to uterine atony. (Weak recommendation, very-low-quality evidence)

20. If bleeding does not stop in spite of treatment using uterotonics and other available conservative interventions (e.g. uterine massage, balloon tamponade), the use of surgical interventions is recommended. (Strong recommendation, very-low-quality evidence)

21. The use of bimanual uterine compression is recommended as a temporizing measure until appropriate care is available for the treatment of PPH due to uterine atony after vaginal delivery. (Weak recommendation, very-low-quality evidence)

22. The use of external aortic compression for the treatment of PPH due to uterine atony after vaginal birth is recommended as a temporizing measure until appropriate care is available. (Weak recommendation, very-low-quality evidence)

23. The use of non-pneumatic anti-shock garments is recommended as a temporizing measure until appropriate care is available. (Weak recommendation, low-quality evidence)

24. The use of uterine packing is not recommended for the treatment of PPH due to uterine atony after vaginal birth. (Weak recommendation, very-low-quality evidence)

25. If the placenta is not expelled spontaneously, the use of IV/IM oxytocin (10 IU) in combination with controlled cord traction is recommended. (Weak recommendation, very-low-quality evidence)

26. The use of ergometrine for the management of retained placenta is not recommended as this may cause tetanic uterine contractions which may delay the expulsion of the placenta. (Weak recommendation, very-low-quality evidence)

27. The use of prostaglandin E2 alpha (dinoprostone or sulprostone) for the management of retained placenta is not recommended. (Weak recommendation, very-low-quality evidence)

28. A single dose of antibiotics (ampicillin or first-generation cephalosporin) is recommended if manual removal of the placenta is practised. (Weak recommendation, very-low-quality evidence)

Box C: Organization of care

29. The use of formal protocols by health facilities for the prevention and treatment of PPH is recommended. (Weak recommendation, moderate-quality evidence)

30. The use of formal protocols for referral of women to a higher level of care is recommended for health facilities. (Weak recommendation, very-low-quality evidence)

31. The use of simulations of PPH treatment is recommended for pre-service and in-service training programmes. (Weak recommendation, very-low-quality evidence)

32. Monitoring the use of uterotonics after birth for the prevention of PPH is recommended as a process indicator for programmatic evaluation. (Weak recommendation, very-low-quality evidence)


Thank You!