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Quantification of Blood Loss: AWHONN Practice Brief Number 13

Recommendation

The Association of Women's Health, Obstetric and Neonatal Nurses (AWHONN) recommends that cumulative blood loss be objectively measured or quantified for every birth.

Background

Postpartum hemorrhage remains a leading cause of maternal mortality in the United States. Data from the Pregnancy Mortality Surveillance System indicated that hemorrhage accounted for 10.7% of maternal deaths from 2014 to 2017 (Centers for Disease Control and Prevention, 2021; Peterson et al., 2019). The rate of maternal mortality in the United States remains higher than many other industrialized nations: 17.3 maternal deaths per 100,000 live births for all maternal mortality causes (Centers for Disease Control and Prevention, 2021; Peterson et al., 2019). Although maternal deaths from postpartum hemorrhage have decreased, hemorrhage requiring blood transfusion has increased and remains the leading cause of maternal morbidity in the United States (American College of Obstetricians and Gynecologists [ACOG], 2017). Health care facilities should be prepared to recognize and treat hemorrhage in the postpartum period.

Measuring Obstetric Related Blood Loss

Inaccurate evaluation of blood loss can lead to delays in response and management of postpartum hemorrhage (Habak et al., 2016; Kahr et al., 2018). Visual estimation of blood loss (EBL) has long been established as an inaccurate measure that can potentially lead to delays in timely recognition and response to obstetric hemorrhage (Al Kadri et al., 2011; Brant, 1967). Visual estimation increases the likelihood to underestimate blood loss when volumes are high and to overestimate blood loss when volumes are low (ACOG, 2019). Delays in recognition and management result in costly treatment for women having postpartum hemorrhage (ACOG, 2019;

California Maternal Quality Care Collaborative [CMQCC], 2015).

In studies to compare visual EBL to colorimetric image analysis during cesarean birth, researchers reported overestimation with the use of visual EBL (Doctorvaladan et al., 2017; Hire et al., 2020). Estimation of blood loss is less effective to detect excessive blood loss than automated quantification of blood loss (QBL; Rubinstein et al., 2020). Quantification of blood loss has been shown to be more accurate than visual EBL (ACOG, 2019; Powell et al., 2020). Limiting a standard process for measuring blood loss to only severe cases perpetuates delays in recognition and response (CMQCC, 2015). Analyses of root causes in maternal mortality reviews have consistently identified missed or delayed diagnosis and delays in initiating treatment when EBL was used (ACOG, 2019).

Evidence to Support the Quantification of Blood Loss

- Quantification of blood loss is an objective measurement that is recommended for the early identification of hemorrhage for all births (ACOG, 2019; CMQCC, 2015, Main et al., 2015; Seacrist et al., 2019).
- Implementation of obstetric hemorrhage bundles that include QBL have been found to significantly reduce maternal morbidity (ACOG, 2019).
- Quantification of blood loss helps to increase the timely escalation of clinical care and can thus influence outcomes (Powell et al., 2020).
- Quantification of blood loss offers a means by which the clinician can use objective measurement to support early response to and management of postpartum hemorrhage (Dildy, 2018).
- Quantification of blood loss is recommended to reduce inaccuracies that can cause potential delays in decision-making and response to postpartum hemorrhage (CMQCC, 2015; Doctorvaladan et al., 2017; Hire et al., 2020).

- Real-time completion of QBL may reduce the need for additional interventions, such as the administration of uterotonic medication, which may lead to potential side effects, unnecessary procedures, and blood transfusions (Hire et al., 2020).
- Quantification of blood loss is a valuable tool for the appropriate surveillance and rescue of women who experience postpartum hemorrhage (Ladouceur & Goldbort, 2019).
- Quantification of blood loss promotes increased team awareness of patient emergencies, which provides more time for mobilization of additional resources (CMQCC, 2015; Katz et al., 2019)
- Quantification of blood loss contributes to earlier use of uterotonics when indicated and a reduction of blood transfusions, which lead to improved patient outcomes (Katz, et al., 2019)

Education

Nurses play a pivotal role in the development, implementation, and sustainment of QBL protocols (Ladouceur & Goldbort, 2019). The process of QBL is nurse-led, within the scope of practice of the registered nurse, and does not require a provider order or signature. Shields et al. (2015) recommended that all education for nurses regarding QBL should include information about assessment and management of postpartum hemorrhage. Consistent interprofessional education to recognize and respond to obstetric hemorrhage should be provided to all members of the health care team and should include the following:

- Using standardized items to calculate blood loss regardless of patient locations.
- Ensuring every labor and postpartum room and operative suite has access to scales and postpartum hemorrhage carts.
- Attaching laminated dry weight cards to all scales for accurate measurement of items that may become blood-soaked.
- Ensuring electronic charting systems automatically deduct dry weights from wet weights whenever possible.
- Providing laminated staging algorithms in each patient room or on each PPH cart.
- Practicing simulation drills for postpartum hemorrhage with all members of the interprofessional team.
- Debriefing after every postpartum hemorrhage to identify additional areas of education needed.

Summary

Objective measurement of blood loss promotes more reliable clinical assessment of patient status, which leads to earlier detection of clinical deterioration. Therefore, QBL can help to heighten clinician vigilance, enhance team awareness, and promote timely and strategic response to the clinical situation (Duzyj, 2020; Kodali, 2020; Ladouceur & Goldbort, 2019). Improved outcomes and reduction of cost have been reported when QBL was used as part of a standardized process in an obstetric hemorrhage bundle (ACOG, 2019, CMQCC, 2015; Katz, 2019).

Acknowledgment

Check for updates

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