Postpartum Hemorrhage: Literature Review

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Quantitative research is data that is collected and can be measured (Houser, 2023). It can be used to determine the effects of an intervention, measure the relationships between variables, and detect changes over time (Houser, 2023). Quantitative studies can also help answer questions on relationships between a cause and effect (Houser, 2023). Quantitative blood loss in obstetric hemorrhages is a major topic that needs to be addressed to help decrease the number of hemorrhages that happen worldwide. Data collected on quantitative methods of measuring this blood loss can help to be more accurate in determining the estimation of obstetric blood loss.

Incidence of Postpartum Hemorrhage Defined by Quantitative Blood Loss Measurement: a National Cohort

This article addresses the effect on visual estimation of blood loss following a delivery is often not an accurate measurement of actual bleeding that occurred (Bell et al., 2020). The article's authors include Sarah F. Bell, along with nine other notable researchers in improving the accuracy of quantitative blood loss measurements compared to visual estimation (Bell et al., 2020). This research was done to help with interventions that can be incorporated into a quality improvement plan for maternal units (Bell et al., 2020). The article develops a deeper understanding in reports of incidences that pertain to a postpartum hemorrhage (PPH) using quantitative measurements (Bell et al., 2020).

Key Points

Measurable data was collected over a one-year period including all women that gave birth in twelve different hospitals (Bell et al., 2020). Before the collection of data started, maternal staff

of all twelve hospitals were educated with standardized training (Bell et al., 2020). This training included mock-scenarios, videos and team drills (Bell et al., 2020). These interventions involved weighing all blood-soaked pads, sheets, and subtracting the known dry weight to get the total blood volume loss (Bell et al., 2020). Researchers collected data from these facilities involving postpartum hemorrhages that resulted in over 1,000 mL of total blood loss and analyzed it according to the type of delivery (Bell et al., 2020). The study discovered statistically significant results when demonstrating quantitative measurements from 52.1% to 87.8% ($p<0.001$) (Bell et al., 2020). Quantitative blood loss measurements are a simple procedure that can be implemented in maternal units that are associated with high rates of postpartum hemorrhages (Bell et al., 2020).

Assumptions

This study was able to collect evidence that quantitative measurement is a more accurate way to measure total blood loss in a postpartum mother rather than visual estimation (Bell et al., 2020). The information found in the study can help further research in monitoring blood loss and the best method to help early detection on postpartum hemorrhages, so they do not become severe (Bell et al., 2020). The research in this article can help in both simulations and clinical practice (Bell et al., 2020). A key intervention to get these results was to assess the quantitative blood loss measurements for all births, along with the assumed risk for bleeding (Bell et al., 2020). The overall finding was that the accuracy of blood loss collected is improved with quantitative measurement techniques (Bell et al., 2020).

Deficit/Conclusion

The importance of this article was to establish evidence on why quantitative measurement is a better option than visual estimation when measuring blood loss in a postpartum mother (Bell et al., 2020). Hemorrhaging is a huge factor that contributes to maternal morbidity and mortality. This study shows evidence on how using the weighing method, then subtracting the dry weight provides a more accurate assessment of actual blood loss postdelivery (Bell et al., 2020). Being able to take quantitative measured blood loss will help prevent and diagnose any significant blood loss directly after delivery (Bell et al., 2020). The twelve hospitals that were used for this study have seen a drastic increase in quantitative blood loss for all modes of delivery, especially vaginal deliveries with increasing from 37.0% to 84.2% (Bell et al., 2020). The statistics within this research speak for themselves. Quantitative measuring is in fact improving maternal units and their postpartum hemorrhage rates. If facilities keep using visual estimation only, their number of hemorrhages will continue to increase because of the inaccuracy of this method, and patients' outcomes will become detrimental.

Induction of Labor and Risk of Postpartum Hemorrhage in Women with Vaginal Delivery: A Propensity Score Analysis

The article's authors include Braund, Deneux-Tharaux, Sentilhes, Seco, Rozenbery, and Goffinet, who explored the association between induction of labor (IOL) and postpartum hemorrhage (PPH) after vaginal delivery (Braund et al., 2023). The article addresses how the induction of labor has become an increasingly common obstetric intervention (Braund et al., 2023). Past research assessing the relationship between induction of labor and postpartum hemorrhage is inconsistent and does not use standardized measurements of postpartum blood

loss (Braund et al., 2023). The article develops a more in depth understanding of the effect that induction of labor has in relationship to postpartum hemorrhages (Braund et al., 2023).

Key Points

Within this study, the authors conducted a secondary analysis measuring data that was collected from three recent controlled trials in 18 different maternity units (Braund et al., 2023). The target of this was to test the effect of specific interventions administered within the third stage of labor to prevent a PPH (Braund et al., 2023). These 18 maternal units used similar interventions and protocols for postpartum blood loss quantification and information on induction of labor methods and indications (Braund et al., 2023). Women had to be at least 18 years old with a single fetus at 35 weeks or more gestation with a planned vaginal delivery to be included within this study (Braund et al., 2023). Demographic characteristics such as patient, pregnancy, labor from medical charts, and any concerning complications are other contributing factors that assisted research results (Braund et al., 2023). This study discovered statistically significant confirmation that a higher risk of PPH is associated with IOL (Braund et al., 2023). Out of 9,209 women, 1,809 were induced and 1,021 of those inductions received a higher quantity of oxytocin during labor ($p<0.001$) (Braund et al., 2023). These results show evidence that women with a vaginal delivery have a higher risk of a postpartum hemorrhage when induced rather than having a spontaneous labor, regardless of the induction method that is used (Braund et al., 2023).

Assumptions

The article's authors' line of reasoning was to assess the relationship of induction of labor with postpartum hemorrhages (Braund et al., 2023). The information collected from the three

different trials all used postpartum hemorrhage as the main outcome and used quantification to calculate blood loss (Braund et al., 2023). This allowed research to classify induction of labor methods, and postpartum hemorrhage overall severity (Braund et al., 2023). The evidence of this study shows that induction of labor is a medical intervention potentially associated with maternal adverse effects (Braund et al., 2023).

Deficit/Conclusion

The established correlation between induction of labor and postpartum hemorrhage is acceptable (Braund et al., 2023). The research collected data from three controlled trials over a one-year span, and 18 different maternity units (Braund et al., 2023). Researchers described the methods and indication for induction of labor and compared the characteristics of women with and without being induced (Braund et al., 2023). The results from this study showed an association between induction of labor and postpartum hemorrhage of 500 mL or more (Braund et al., 2023). Further research needs to be done on mothers undergoing an induction to mothers that knew they would need intent-to treat medications (Braund et al., 2023).

The Association Between Body Mass Index and Postpartum Hemorrhage After Cesarean Delivery

The authors include Julia Whitley, Wayde Dazelle, Shawn Kripalani, and Homa Ahmadzia (Whitley et al., 2023). They aimed to evaluate the association between obesity and postpartum hemorrhage (PPH) after a cesarean delivery (CD) (Whitley et al., 2023). Obesity (body mass index ≥ 30 kg) is one of the most common pregnancy complications, especially in the United States (Braund et al., 2023). Because prevalence of obesity and severe obesity is

increasing, this study will dive deeper into determining if obesity is associated with an increased risk for postpartum hemorrhage or hemorrhage complications (Whitley et al., 2023).

Key Points

Measurable data collection of patients undergoing cesarean deliveries (CD) and their outcomes from 2015-2019 is analyzed to determine a relationship within one another (Whitley et al., 2023). All patients who underwent a CD during their admission into labor room were eligible to be included in the study unless they did not have a BMI charted at time of delivery, or if a vacuum/forceps were used (Whitley et al., 2023). These reports came from 20 different hospitals across the Eastern, Western, and Central United States (Whitley et al., 2023). The main interest with CD is the BMI at time of delivery. The data was collected and sorted into six categories (Whitley et al., 2023). These categories were BMI below 18.5, 18.5 to 24.9, 25.0-29.9, 30.0-34.9, 35.0 to 39.9, and above 40 (Whitley et al., 2023). Separating results into these categories was the primary analysis to see the outcome with PPH (EBL ≥ 1,000 mL) (Whitley et al., 2023). The secondary analysis was cesarean deliveries that had outcomes of an estimated gestational age less than 37 weeks, intrapartum complications, abnormal hematologic parameters, and pharmacologic interventions (Whitley et al., 2023). The main interest of a BMI ≥ 30 kg did not significantly raise a higher risk for a PPH (Whitley et al., 2023). However, patients with an increasing BMI are associated with an estimated blood loss of greater than 1,000 ($p<0.001$) (Whitley et al., 2023).

Assumptions

The articles' main purpose for this research was to find the association between obesity and postpartum hemorrhage after a cesarean birth (Whitley et al., 2023). Although the association between BMI and estimated blood loss after a cesarean birth were elevated when the BMI was increased, the article defined that there was not a find in higher frequency of blood transfusion among women with obesity after CD (Whitley et al., 2023). This meaning that there may be no difference in clinically significant blood loss between women with and without obesity (Whitley et al., 2023). With these results, researchers can indicate that estimated blood loss is an unreliable indicator of a clinically significant hemorrhage because of observed increasing odds of PPH, yet a decrease in blood transfusion among obese woman (Whitley et al., 2023).

Deficit Conclusion

The research from the article determines that patients with a higher BMI are associated with having an estimated blood loss of ≥1,000 mL are indifferent (Whitley et al., 2023). The article analyzed data to find that having an increasing BMI and estimated blood loss of over 1,000 mL do correlate together. However, with the increasing odds of a postpartum hemorrhage in obese patients, there was a decrease in blood transfusions (Whitley et al., 2023). Because of this, the impact of obesity on maternal blood loss volume and the parameter for transfusion needs to be investigate further despite the results of this study (Whitley et al., 2023).

Conclusion

Postpartum hemorrhage is a major cause of maternal morbidity. It is a topic that needs continuous education because of how many factors contribute why a patient might experience this complication. Using quantitative measurement to assess patients total blood loss will result

in a more accurate measurement rather than visual estimation (Bell et al., 2020). Using this method will aid in interventions before the complication becomes severe. Pregnant mothers should also try to refrain from being induced if circumstances allow. Induction of labor with patients that plan to have a vaginal birth become a higher risk for a postpartum hemorrhage (Braund et al., 2023). Patients with higher BMI when pregnant could also be at risk for a postpartum hemorrhage (Whitley et al., 2023). These patients are known to lose over 1,000 mL of quantitative blood loss (Whitley et al., 2023). Postpartum hemorrhage effects can cause long term complications. It is a topic that needs continuous education with updated research.

The information collected on postpartum hemorrhages will not only improve the patients' outcomes, but also the maternal units. The decline and improvement in patients' health during a postpartum hemorrhage help show current factors they must address to improve patient outcome. Data collection from updated research helps but a better understanding on what needs to be done to prevent mothers from hemorrhaging that are considered high risk.

Analyzing this data will allow for facilities to be aware of complications and update their practice on missing parts that are resulting in higher rates of postpartum hemorrhage. The results found in the reviewed articles provide evidence on different practice techniques that will result in better outcomes. Updated research provides knowledge and evidence to help improve nursing practice and patient centered care.

Knowledge, skills, and attitudes will also aid in nursing practice (QSEN institute, 2020). Knowledge will help with assuring coordination and continuity of care for a high-risk postpartum hemorrhage patient (QSEN institute, 2020). Using skills, such as implementation of care will allow the nurse to be prepared for the complication and not allow the hemorrhage to

become severe (QSEN institute, 2020). Being able to understand and sympathize that this patient might be scared knowing she is a high risk will help with the attitude of the nurse (QSEN institute, 2020).

Research plays a crucial role in improving various aspects of healthcare including patient outcomes, nursing practice, evidence-based practice, quality improvement efforts, and overall healthcare delivery. With postpartum practice continuously changing, this allows research to find methods and interventions that will serve as a better outcome. The findings from the analysis involving postpartum gives evidence and confidence that new clinical practices can statistically make maternal units decrease not only in their hemorrhage rates, but also in postpartum bleeding. The information collected on postpartum hemorrhage will improve patient outcomes by the change it gave to the healthcare facilities. Data collection on PPH addresses improvements that need to change in the clinical setting.

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