POSTPARTUM HEMORRHAGE – INCIDENCE MORE AFTER NORMAL VAGINAL DELIVERY OR CESEREAN SECTION?

ABSTRACT

The journey of pregnancy itself is an unpredictable and unexpected one. When a new mother has been confirmed with the news of pregnancy and child-bearing, there is a long list of precautions, do's, and don'ts that follow from the obstetrician and the families. Tackling either of them, along with ensuring that the journey goes smoothly for both the mother and her unborn child, is what makes it a truly uncomplicated and beautified process. However, despite taking extreme care and steering clear of all the possible danger signs during pregnancy, there are many women, both being pregnant for the first time or multiple times, who unfortunately have to face several complications as a part of their child-bearing journey. These complications could either present during pregnancy, during childbirth, or immediately after the time after birth. Whatever the timing is, there is always a risk of developing life-threatening consequences as well as outcomes soon after such times. Post-partum hemorrhage is one of such incidents or complications that is always at risk of developing in new mothers. It is considered to be one of the most dangerous complications associated with the birth of a child, and that could very soon turn out to be a lethal one, too, if immediate steps are not taken to reverse or stop it. Since it is an obstetrical emergency, there have already been several researches done on the topic to make sure that obstetricians worldwide are equipped and educated better on how to prevent this situation entirely. If not for the prevention, then the immediate and effective control of this condition is what remains the priority of all obstetricians collectively. It is for this purpose that this review was brought forth; there is a need to investigate and implore the causes of post-partum hemorrhage to see how it could be stopped and prevented. For the purpose of convenience and

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staying relevant to the topic, this review will deal with exploring whether the incidence of post-partum hemorrhage is more with normal vaginal delivery or cesarean section. This comparison would help in understanding why it occurs in each type of childbirth and what possibly could be done to help prevent or stop it from taking place at all. This review will also serve as an educational reading tool to help educate the masses regarding this most feared complication.

INTRODUCTION

According to the American College of Obstetrics and Gynecology (2017), postpartum hemorrhage is defined as 'the blood loss greater than 1000 mL, associated with signs and symptoms of hypovolemia, regardless of the route of delivery'. However, in the past, the criteria for postpartum hemorrhage for different, and it was said to be more categorized so when there was a blood loss of more than 500 mL associated with vaginal delivery and 1000 mL when associated with cesarean section. (1)

From the point of occurrence, postpartum hemorrhage could either be primary or secondary, with the former occurring within the first 24 hours of childbirth and the latter occurring at any time after 24 hours to within 12 weeks of the postpartum period. However, despite the classification, there needs to be a strict system of monitoring any type of blood loss that follows the delivery of a fetus. (2)

There are several factors that are involved in the equation when it comes to diagnosing a woman for postpartum hemorrhage. Sometimes, a case of postpartum hemorrhage may be masked due to the increased plasma volume levels that occur as a 'normal' consequence of pregnancy and its related changes. The other factors that should raise suspicion for an ongoing postpartum hemorrhage include changes or decreases in the levels of hematocrit, a sudden need for blood transfusion, an increasing blood loss as reported by the woman in her own terms (or simply when

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she notices blood loss that seems more than the normal amount for her), and an acute rise or downfall in the vital signs. All these factors are significant enough to alert everyone regarding the ongoing changes that might be proof of an ongoing postpartum hemorrhage. Apart from the normal primary and secondary types of postpartum hemorrhage, there are also 'third' or 'fourth' stages that result both before and after the delivery of the placenta, respectively. (3)

When viewed from an incidence point of view, it is seen that around 6 to 11 in every birth is associated with the risk of postpartum hemorrhage. (4) This rate of incidence keeps rising, depending upon various factors.

As a general rule of thumb, it was seen that the rates of postpartum hemorrhage were significantly increased in highly developed countries, such as the United States, Canada, Australia, etc. This further forces the need for more research to be done on this ground as well as to reveal the reasons why these developed states are associated with increased rates of morbidity and mortality related to postpartum hemorrhage. It was also revealed in one study that the rate of postpartum hemorrhage has increased exponentially in the United States. When exploring the reasons, not one major reason was found to be responsible for this occurrence. (5)

Irrespective of the causes and the modes of delivery that caused postpartum hemorrhage in the first place, it is seen that it is associated with an increased risk of mortality and morbidity in the affected females. According to research, postpartum hemorrhage alone was found to be responsible for nearly a quarter of all maternal deaths related to pregnancy.

On the other hand, there are several studies that have shed light on an important side of the story, and that is, the avoidance or prevention of these tragic outcomes linked to postpartum hemorrhage could be averted through early detection, diagnosis, and, consequently, more immediate assertive interventions. (6)

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The aftermath of outcomes that result as a result of the incidence of postpartum hemorrhage could be profound, thereby unleashing a cascade of complications. These might include organ failure, shock, debilitating edema, compartment syndrome, complications stemming from blood transfusions, thrombosis, the onset of acute respiratory distress syndrome, sepsis, anemia, the need for intensive care, and prolonged hospital stays.

So far, the most common cause that has been devised as the cause behind the occurrence of postpartum hemorrhage is uterine atony. In this condition, the uterus fails to contract effectively after childbirth. This condition accounts for approximately 80 percent of the total postpartum hemorrhage cases. (7)

Additionally, there are some other factors as well that could cause postpartum hemorrhage, and these include scenarios such as a retained placenta or clots, lacerations, uterine rupture or inversion, and inherited or acquired coagulation abnormalities. These diverse origins underline the complexity of addressing and mitigating the risks posed by postpartum hemorrhage in maternal care.

THE MECHANISM AND OCCURRENCE OF POSTPARTUM HEMORRHAGE FOLLOWING NORMAL VAGINAL DELIVERY AND CESAREAN SECTION BIRTHS

Since it is now an established fact that there is no cut-off value for the occurrence of postpartum hemorrhage in both normal vaginal deliveries and cesarean section births, it is now reasonable to compare the incidences as well as the mechanisms behind the occurrence of postpartum hemorrhage in either of these conditions.

Having an overview of the prevalence and occurrence of postpartum hemorrhage in both normal vaginal deliveries and cesarean section will also help decide whether postpartum hemorrhage occurs more in NVD or C-section births.

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Cesarean Section And Postpartum Hemorrhage

Cesarean section is slowly increasing in popularity owing to several factors. There is a shorter road to recovery, a shorter stay at the hospital, and an apparently lower risk of intraoperative blood loss during the procedure that makes several women reach out to this mode of delivery.

However, when it comes to comparing the rates of postpartum hemorrhage as seen in cesarean section births, it was found that C-section births carry a higher risk of postpartum hemorrhages as compared to normal vaginal deliveries. (8)

It was found through different studies that a large number of women who undergo Cesarean sections are at the highest risk of encountering postpartum hemorrhage and the likely complications that are associated with it.

Even more concerning was the fact that pointed toward the obvious reality that the incidence of postpartum hemorrhages occurring with the Cesarean section is on the rise, thus becoming a fact of common occurrence. A study carried out in the United States revealed that the rate of atonic postpartum hemorrhage, which is otherwise considered to be one of the most severe forms of postpartum hemorrhage was seen to increase at an alarming pace of 106% over the years 1994 to 2006. This could simply be due to the increased trend to go forward with Cesarean section births despite there not being any obvious indications to go forth with the said mode of delivery. In contrast, women who underwent Cesarean section in a non-induced mode were seen to have a 130% rise in the incidence of postpartum hemorrhage overall. (6)

Since the beginning, identifying the risk factors associated with postpartum hemorrhage during cesarean delivery has always posed a significant challenge. These challenging situations arise from notable distinctions in the characteristics of patients, obstetric situations, and the course of labor for women undergoing Cesarean section without labor (referred to as pre-labor Cesarean

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section) versus those who have Cesarean section after the onset of labor or labor induction (referred to as intrapartum CD). (9)

Concluding from the data and observations obtained from two comprehensive population-based studies conducted in Norway, it has been observed that the risk of postpartum hemorrhage is elevated among women who undergo intrapartum Cesarean section delivery compared to those opting for pre-labor Cesarean section. Particularly speaking, the reported incidence of postpartum hemorrhage stands at 3.1% for intrapartum Cesarean section, whereas it is 2% for pre-labor Cesarean section. This difference in risk may potentially be attributed to intrapartum factors, such as the presence of chorioamnionitis and exposure to oxytocin, which may offer insights into why the risk of atonic postpartum hemorrhage is more pronounced following labor induction. (10)

Normal Vaginal Delivery And Postpartum Hemorrhage:

Despite being painful and an increased time for recovery, normal vaginal delivery remains the modality of choice for several women worldwide. (11)

It has been commonly observed that the rate and incidence of postpartum hemorrhage following vaginal delivery spans a broad spectrum, ranging from as low as 0.8% to as high as 7.9%. These statistics are not just evidence-based figures but have significant implications for maternal healthcare. It is a well-established fact that vaginal delivery remains the predominant mode of childbirth, accounting for at least two-thirds of all births in the United States. In light of this prevalence, it is imperative to closely examine the risk factors associated with postpartum hemorrhage in this particular delivery cohort for several compelling reasons. (12)

First and foremost, our understanding of the risk factors for postpartum hemorrhage following vaginal delivery is somewhat limited. The existing body of research on this topic is far from

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exhaustive. Moreover, the landscape of obstetric care has evolved over time, with notable revisions in the guidelines for diagnosing labor dystocia made by the American College of Obstetricians and Gynecologists in 2014. This prompts a critical need to reassess the risk factors for postpartum hemorrhage in the context of contemporary intrapartum care and practices. (13)

Furthermore, when we rely solely on administrative data, we may inadvertently overlook certain crucial intrapartum factors, such as the use of oxytocin augmentation. To gain a more comprehensive understanding of the intricate associations between labor factors and postpartum hemorrhage following vaginal delivery, it becomes imperative to turn to studies that delve into granular clinical data. (14)

Lastly, the landscape of medical and surgical interventions for managing postpartum hemorrhage has evolved significantly in recent years. Innovative approaches, such as intrauterine balloon tamponade and interventional radiology techniques, have entered the arsenal of second-line treatments for severe postpartum hemorrhage. However, the data surrounding their efficacy and utilization in the context of postpartum hemorrhage following vaginal delivery remain scarce. (12)

In light of these critical knowledge gaps, research endeavors aimed at exploring risk factors for postpartum hemorrhage, evaluating interventions, and examining outcomes post-postpartum hemorrhage (post-PPH) following vaginal delivery are of immense value. By shedding light on these areas, such studies stand to inform and shape current clinical practices, ultimately enhancing the care and safety of expectant mothers during childbirth.

CONCLUSION

From the above-mentioned facts and figures, it is clear that the rates of postpartum hemorrhage are more with Cesarean section deliveries as compared to vaginal deliveries.

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There are several factors that contribute to these observations, however, the end-point for all incidences points towards one major reality, and that is the prevention and adequate control of factors that make the development of postpartum hemorrhage a much more complicated and life-threatening scenario than it actually is.

It is very evident that postpartum hemorrhage could easily be controlled using medical interventions; however, measures need to be taken to avoid all sorts of implicating consequences that could further worsen the situation for a patient.

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