Incidence of Coagulopathy in Postpartum Hemorrhage

Abstract Type: Original Research
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Background: Postpartum hemorrhage affects 4-6% of pregnancies and life-threatening hemorrhage is estimated to occur in 1:1000 live births (1). Hemorrhage is the primary cause of ICU admission and the second most common cause of maternal mortality in the U.S. (2). Obstetric hemorrhage is known to be associated with coagulopathy, but the relationship between abnormal coagulation and estimated blood loss is not well defined. The objective of this study was to retrospectively examine the incidence and risk factors associated with abnormal coagulation in patients diagnosed with postpartum hemorrhage.

Methods: A query of the University of Colorado Perinatal Database from October 2005 to November 2009 was performed to identify patients with postpartum hemorrhage. Patients were selected based on estimated blood loss ≥500ml for vaginal delivery, ≥1000ml for cesarean delivery, or those were identified in their medical record as having experienced a postpartum hemorrhage. Patients with preexisting anticoagulation were excluded. While 1816 patients were identified, this intermediate analysis included only the first 801 patients. Patients were determined to have been coagulopathic if the clinical diagnosis was present in the patient’s chart. In order to evaluate the association between the degree of hemorrhage and reported coagulopathy, patients were divided into 3 groups- mild (500-1500ml), moderate (1501-3000ml) and severe (>3000ml).

Results: Preliminary results indicate the overall incidence of reported coagulopathy is 1.12% (9 out of 801) in our study population. Patients who developed coagulopathy were older (27 vs 32 y/o, p<0.05), had a greater blood loss (p<0.01) and were more likely to have undergone cesarean delivery (p<0.01). Severe blood loss was also significantly associated with coagulopathy when compared to moderate hemorrhage (p<0.01). The overall incidence of coagulopathy was 2 vs 53% in moderate and severe hemorrhage respectively. Gravity, parity, ethnicity and preeclampsia were not associated with increased risk of coagulopathy.

Conclusion: Patients with a blood loss >3000ml had a higher incidence of reported abnormal coagulation with postpartum hemorrhage. The group developing coagulopathy was also more likely to be delivered by cesarean section and be greater than 32 years of age. Current ASA guidelines do not recommend factor replacement until after transfusion of one blood volume or an INR >2.0 (3). We observed a high incidence of abnormal coagulation prior to the loss of one blood volume. However, the retrospective, multifactorial nature of our study limits our ability to draw conclusions about blood product management. More studies are needed to define the optimal time for clotting factor administration in obstetrical hemorrhage.

2. CDC; NVSR, V 58:19, May 2010, tables 33 and 34
3. Anesthesiology 2006;105:198-2