Clinical Pathology Abstracts, 9/17

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Hemoccult testing before therapeutic anticoagulation in venous thromboembolism

Gastrointestinal bleeding is a major adverse event associated with therapeutic anticoagulation. Surveys of physicians have shown that concern for this event is one of the most common reasons to withhold anticoagulation in patients who have atrial fibrillation, acute coronary syndromes, or venous thromboembolism (VTE). Fecal occult blood testing is performed routinely before starting therapeutic anticoagulation, even though it was never validated to predict gastrointestinal bleeding (GIB) risk. The authors conducted a study to determine the utility of checking the guaiac fecal occult blood test (gFOBT) before initiating therapeutic anticoagulation in patients with a new diagnosis of VTE. They performed a retrospective chart review that examined patients with a diagnosis of VTE who were admitted to a midsized tertiary care center during a two-year period. The gFOBT was performed prior to starting anticoagulation, and outcomes involved evaluating GIB outcomes. All patients with overt GIB were excluded. In addition, the investigators calculated a HAS-BLED (hypertension, abnormal renal/liver function, stroke history, bleeding history or predisposition, labile international normalization ratio, elderly, drugs/alcohol concomitantly) score to determine other factors that were predictive of new-onset GIB when starting anticoagulation. The results showed that 718 patients with a new diagnosis of VTE were screened for gFOBT over two years. Of this cohort, 375 patients received anticoagulation therapy and 244 had a documented gFOBT (205 negative gFOBT and 39 positive gFOBT). Of the 375, 14 (3.73 percent) had a GIB episode. A positive gFOBT was present on admission for 85.7 percent of those who bled ($P < .001$). The negative predictive value of gFOBT was 99.02 percent, but there was a low positive predictive value of only 30.77 percent. A HAS-BLED score of more than two at admission also significantly predicted GIB. The authors concluded that even though gFOBT has a beneficial negative predictive value, performing the test before starting therapeutic anticoagulation is unlikely to change the management of patients who have no evidence of overt GIB. The authors were unable to conclude from the study that a positive gFOBT should be used as a reason to withhold anticoagulation. However, a positive gFOBT may predict which patients should be monitored more closely while receiving anticoagulation, particularly if their HAS-BLED scores are high.

Urbas R, Badri M, Albert NE, et al. Utility of hemoccult testing before therapeutic anticoagulation in venous thromboembolism. *South Med J.* 2017;110(5):375–380.

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Analysis of massive transfusion ratios in the nontrauma setting

Many retrospective studies involving military and civilian trauma patients have shown that transfusing large amounts of plasma, platelets, and red blood cells using a massive transfusion protocol have improved survival. As a result of these studies, recommendations are to use a high ratio of fresh frozen plasma to packed RBCs and platelets to packed RBCs, commonly at a ratio of 1:2 or greater. However, the optimal ratios of blood products are still highly controversial, and there is a paucity of research on blood product ratios in nontrauma bleeding patients. This is significant because massive transfusion occurs more frequently in the treatment of nontraumatic surgical and critically ill patients who have a variety of comorbidities and coagulopathy profiles. The authors conducted a study in which they investigated the outcomes from administering blood component ratios in massively transfused

nontrauma patients. They hypothesized that there is no difference in 30-day mortality between patients receiving relatively higher fresh frozen plasma to RBC and platelet to RBC ratios (greater than 1:2) compared with lower ratios (1:2 or lower) in the nontrauma setting. The authors performed a retrospective analysis of a prospective, observational cohort of massively bleeding surgical and critically ill patients at a tertiary medical center between 2011 and 2015. These were patients who received fresh frozen plasma, platelets, and RBC transfusions and were categorized into high and low ratio groups and analyzed for differences in outcomes and clinical characteristics. Among the 601 massively transfused nontrauma patients analyzed, the most common indications for massive transfusion were cardiothoracic surgery and gastrointestinal or hepatopancreaticobiliary bleeds. The results showed that fresh frozen plasma to RBC ratios were not associated with increased 30-day mortality. A high platelet to RBC ratio (greater than 1:2) was associated with decreased 48-hour mortality but not 30-day mortality. Even after controlling for baseline characteristics and disease severity, the blood product ratios were not associated with 30-day mortality hazard ratios. The authors concluded that the benefits of higher ratios of fresh frozen plasma to RBCs and platelets to RBCs were not observed in this nontrauma population. The data suggest that higher ratios may not be appropriate for all patients and massive transfusion protocols may not be a one-size-fits-all. The authors recommend further research to guide appropriate resuscitation strategies in nontrauma patients.

Etchill EW, Myers SP, McDaniel LM, et al. Should all massively transfused patients be treated equally? An analysis of massive transfusion ratios in the nontrauma setting [published online ahead of print May 23, 2017]. *Crit Care Med.* doi:10.1097/CCM.0000000000002498.

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