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Platelet transfusion: a clinical practice guideline from the AABB

The AABB recently developed guidelines on the appropriate use of platelet transfusions in adults. The guidelines are based on a systematic review of randomized clinical trials and observational studies from 1900 to September 2014 that reported clinical outcomes on patients who received either prophylactic or therapeutic platelet transfusions. An expert panel reviewed the data and developed pragmatic recommendations on the best published evidence. The goal of the committee was to identify a platelet count threshold below which transfusion may improve hemostasis and above which platelet transfusion is unlikely to benefit the patient. The authors used the Grading of Recommendations Assessment, Development and Evaluation (GRADE) method to assess the quality of the evidence and determine the strength of the recommendations. Four GRADE factors—quality of evidence, balance between the intervention's benefits and harms, resource use, and patient values and preferences—were used to judge the evidence. The authors developed six clinical recommendations in four clinical settings. They were transfusion of hospitalized adult patients with a platelet count of 10 × 109 cells/L or less to reduce the risk for spontaneous bleeding (setting: adult patients with therapy-induced hypoproliferative thrombocytopenia); prophylactic platelet transfusion for patients having elective central venous catheter placement with a platelet count of less than 20 × 109 cells/L (setting: adult patients having minor invasive procedures); prophylactic platelet transfusion for patients having elective diagnostic lumbar puncture with a platelet count of less than 50 × 109 cells/L (setting: adult patients having minor invasive procedures); prophylactic platelet transfusion for patients having major elective nonneuraxial surgery with a platelet count of less than 50 × 109 cells/L (setting: adult patients having major elective nonneuraxial surgery); no routine prophylactic platelet transfusion for patients who are nonthrombocytopenic and have cardiac surgery with cardiopulmonary bypass, but platelet transfusion for patients having cardiopulmonary bypass who exhibit perioperative bleeding with thrombocytopenia and/or with evidence of platelet dysfunction (setting: adult patients having major elective nonneuraxial surgery); and no recommendation for or against platelet transfusion for patients receiving antiplatelet therapy who have traumatic or spontaneous intracranial hemorrhage (setting: adult patients receiving antiplatelet therapy who have intracranial hemorrhage). The strongest recommendation, with moderate-quality evidence, was transfusing platelets prophylactically to reduce the risk for spontaneous bleeding at a threshold of 10 × 109 cells/L or less. The most uncertain recommendation, with very-low-quality evidence, was not making a recommendation with regard to platelet transfusion for patients receiving antiplatelet therapy who have intracranial hemorrhage. In this case, the committee recommended therapy based on individual clinical decision-making. The remaining recommendations were graded as weak based on low-quality or very-low-quality evidence. The authors noted that many of the guidelines were based on observational data due to the lack of randomized control trials. They concluded that while the AABB guidelines are not standards, they do represent current thinking and should provide a useful adjunct to health care providers' clinical judgment regarding individualized transfusion decisions.

Kaufman RM, Djulbegovic B, Gernsheimer T, et al. Platelet transfusion: a clinical practice guideline from the AABB. *Ann Intern Med.* 2015;162:205–213.

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Rapid identification of microorganisms with FilmArray multiplex PCR test

Suspected bacterial infections are a major reason for pediatric hospital admissions. A delay in identifying and treating a blood stream infection can lead to an increase in morbidity and mortality and contribute to health care costs. Children are often given antimicrobials on admission to the hospital until blood stream infection can be confirmed or ruled out. Using routine blood cultures to diagnose bacteremia results in a delay of 24 to 72 hours to confirm microbial growth. Newer rapid methods to identify pathogens when first detected in blood cultures can avoid these delays and unnecessary antimicrobial therapy. The authors conducted a study in which they evaluated the FilmArray Blood Culture Identification Panel (FA-BCIP) as a multiplex polymerase chain reaction test that can detect 24 pathogens within one hour. They prospectively studied children having blood cultures taken at a tertiary children's hospital. The blood cultures were monitored and organisms identified using standard methods. The authors then performed FA-BCIP when growth was initially detected in the first positive blood culture per episode and determined if the results altered clinical management, such as length of stay. The findings showed that FA-BCIP results altered clinical management in 63 of the 117 (54 percent) episodes. Antimicrobials were started or altered in 19 percent of the episodes and de-escalated, withheld, or stopped in 25 percent. Ten children were discharged from the hospital earlier, which saved a cumulative total of 14 bed days. The authors concluded that use of FA-BCIP showed an improvement over standard culture methods, which led to changes in management and earlier discharge from the hospital for some pediatric patients. They noted that additional studies are needed to assess how best to use this approach in an integrated pediatric infection service.

Ray STJ, Drew RJ, Hardiman F, et al. Rapid identification of microorganisms by FilmArray blood culture identification panel improves clinical management in children [published online ahead of print March 7, 2016]. *Pediatr Infect Dis J.* doi:10.1097/INF.0000000000001065.

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