

Matched platelet transfusions in alloimmunization

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Marsh JC, Stanworth SJ, Pankhurst LA, Kallon D, Gilbertson AZ, Pigden C, Deary AJ, Mora AS, Brown J, Laing ES, Choo LL, Hodge R, Llewelyn CA, Harding K, Sage D, Mijovic A, Mufti GJ, Navarrete CV, Brown CJ. An epitope-based approach of HLA-matched platelets for transfusion: a noninferiority crossover randomized trial. *Blood*. 2021;137(3):310-322.

- 1. Your patient is a 69-year-old man with alloimmunized, platelet-refractory thrombocytopenia with acute myeloid leukemia. According to the randomized double-blind noninferiority crossover trial by Marsh and colleagues, which of the following statements about primary and secondary outcomes from human leukocyte antigen (HLA) epitope-matched (HEM) vs HLA standard antigen-matched (HSM) platelet transfusions is correct?**

 - HEM was statistically significantly superior to HSM in the primary outcome of 1-hour posttransfusion platelet count increment (PCI)
 - Transfusion requirements were significantly greater with HSM than with HEM
 - There were significantly more bleeding events with HSM than with HEM
 - In both treatment arms, the proportion of inadequate PCI was 16%
- 2. According to the randomized double-blind noninferiority crossover trial by Marsh and colleagues, which of the following statements about HLA antibody specificity and identification of target epitopes is correct?**

 - For every additional one epitope mismatch, the likelihood of an adequate PCI decreased by 15%
 - HLA antibodies were most frequently directed against HLA-A
 - There was no evidence of "epitope spreading"
 - Sera from highly sensitized patients did not have increased frequency of 166DG eplet epitopes
- 3. According to the randomized double-blind noninferiority crossover trial by Marsh and colleagues, which of the following statements about the clinical implications of outcomes of HEM vs HSM platelet transfusions is correct?**

 - Platelet refractoriness caused by HLA alloimmunization is only a minor clinical problem
 - The findings suggested that epitope-matched platelets should be considered to support patients with HLA alloimmunization
 - Management of platelet refractoriness caused by HLA alloimmunization is easily resolved by transfusion of platelets from HLA-matched or HLA-compatible donors
 - An HEM approach is unlikely to identify matched products that would have been missed by searching for HSM platelets