Abstract

BACKGROUND: Cross-matched platelet (cross-matched PLT) transfusion is effective for immune-mediated platelet transfusion refractoriness (PTR), but is more costly and time-consuming for physical cross-match than using standard PLT units. Recent studies have reported the utility of human leucocyte antigens (HLA) virtual cross-matched PLT (HLA-matched PLT) that is defined as HLA-A/B matched or no antibody against donor-specific antigen. Here, we evaluated the effect of HLA-matched PLT for PTR in post hematopoietic stem cell transplant (HSCT) recipients.

STUDY DESIGN AND METHODS: Our study included a total of 241 PLTs in 16 patients who underwent HSCT at Okayama University Hospital between 2010 and 2017, receiving either HLA-matched or cross-matched PLT. We calculated the 24-hour corrected count increments (CCI-24) to evaluate the effect of PLTs. A CCI-24 ≥ 4500 was considered to be a successful transfusion.

RESULTS: We analyzed 139 cross-matched PLTs and 102 HLA-matched PLTs. In the immune-mediated PTR, the rate of successful transfusion was 60.5% for cross-matched PLT and 63.4% for HLA-matched PLT (p = 0.825). On the other hand, the median CCI-
24 for cross-matched PLT transfusions and HLA-matched PLT transfusions were 1856 and 5824 (p < 0.001), with a success rate of 28.1% and 54.1% in cases with non-immune-mediated PTR, respectively (p = 0.001).

**CONCLUSION**: The effectiveness of HLA-matched PLT is not inferior to cross-matched PLT. This result indicates that physical cross-match can be omitted in post-HSCT PTR.