

Immature platelet fraction for prediction of platelet engraftment after allogeneic stem cell transplantation

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Platelet regeneration represents an important and separate element in the engraftment process for allogeneic stem cell transplantation. Fully automated flow cytometry using blood cell counters now allows reliable quantification of reticulated platelets, expressed as the immature platelet fraction (IPF). We studied the kinetics of IPF in six patients grafted with allogeneic peripheral blood stem cell transplantation (PBSCT), 12 patients with bone marrow transplantation (BMT) and seven patients with cord blood transplantation (CBT). Preconditioning therapy caused an immediate and rapid fall in tri-lineage hematopoiesis. IPF rose transiently above 3% after a mean duration of 11 days post-PBSCT, 18 days post-BMT and 19 days post-CBT. This was 1, 4 and 13 days earlier than platelet engraftment, respectively. A linear correlation model showed a close association between the rise of IPF and tri-lineage engraftment after transplantation. IPF counting may thus provide an accessible measure of thrombopoietic activity, leading to early evaluation of marrow function and allowing monitoring of platelet regeneration.

PMID: 17334382 [PubMed - indexed for MEDLINE]