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# Immature Platelet Fraction and Immature Reticulocyte Fraction as Early Predictors of Hematopoietic Recovery Post Stem Cell Transplantation

**Authors :** Aditi Mittal, Nishit Gupta, Tina Dadu, Anil Handoo

**Abstract :** Introduction: Hematopoietic stem cell transplantation (HSCT) is a curative treatment done for hematologic malignancies and other clinical conditions. Its main objective is to reconstitute the hematopoietic system of the recipient by administering an infusion of donor hematopoietic stem cells. Transplant engraftment is the first sign of bone marrow recovery. The main objective of this study is to assess immature platelet fraction (IPF) and immature reticulocyte fraction (IRF) as early indicators of post-hematopoietic stem cell transplant engraftment. Methods: Patients of all age groups and both genders undergoing both autologous and allogeneic transplants were included in the study. All the CBC samples were run on Mindray CAL-8000 (BC-6800 plus; Shenzhen, China) analyser and assessed for IPF and IRF. Neutrophil engraftment was defined as the first of three consecutive days with an ANC >0.5 x 109/L and platelet engraftment with a count >20 x 109/L. The cut-off values for IRF were calculated as 13.5% with a CV of 5% and for IPF was 19% with a CV of 12%. Results: The study sample comprised 200 patients, of whom 116 had undergone autologous HSCT, and 84 had undergone allogeneic HSCT. We observed that IRF anticipated the neutrophil recovery by an average of 5 days prior to IPF. Though there was no significant variation in IPF and IRF for the prediction of platelet recovery, IRF was preceded by 1 or 2 days to IPF in 25% of cases. Conclusions: Both IPF and IRF can be used as reliable parameters as predictors for post-transplant engraftment; however, IRF seems to be more reliable than IPF as a simple, inexpensive, and widely available tool for predicting marrow recovery several days before engraftment.

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