IMPACT OF DONOR CHARACTERISTICS ON EARLY POST-TRANSPLANT OUTCOMES: A COMPARATIVE ANALYSIS OF HLA-MATCHED DONORS VERSUS HLA-MISMATCHED DONORS

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Beyond the established role of human leukocyte antigen (HLA) matching, post-transplant outcomes in allogeneic hematopoietic stem cell transplantation (allo-HSCT) are also influenced by donor, patient, and transplant-related factors. This study aimed to assess the impact of donor-related characteristics on early post-transplant outcomes in a single-center study. We retrospectively analysed 43 patients who underwent allo-HSCT at the University Clinical Center of Serbia (2017 – 2019) to evaluate the impact of the donor's ABO blood type, gender, age, and cytomegalovirus (CMV) status on transplantation outcomes among patients categorised into two groups: HLA-matched (MSD/MUD) and HLA-mismatched donors (MMUD/haploidentical). Engraftment kinetics were assessed using Fine–Gray subdistribution hazard models; survival was estimated using the Kaplan–Meier method; logistic regression evaluated predictors of aGVHD. Leukocyte and platelet engraftment kinetics were comparable between groups ($\chi^2 = 2.52$, $p = 0.112$). Engraftment was significantly faster in the MSD group ($p = 0.018$), when analysed separately. In both groups, a younger donor was associated with improved leukocyte engraftment (HR = 0.9680, p = 0.033). Female-to-male mismatch delayed platelet engraftment (HR = 2.31, p = 0.032) in both groups. Post-transplant complications and overall survival (median 24 months, p = 0.827) did not differ significantly between groups. Donor age was associated with an increased risk of aGVHD (OR = 1.13, p = 0.0487) in both groups. In our study, CMV status and ABO compatibility did not affect post-transplant outcomes. These findings underscore the importance of donor-related factors, in addition to HLA matching, in optimising donor selection and improving early transplant outcomes.

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