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BOOK OF ABSTRACTS

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Title: Comparison of chimerism in patients with aplastic anemia and primary immunodeficiencies after allogenic hemopoetic stem cell transplantation

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INTRODUCTION: The primary disease have a significant effect on the engraftment of donor cells and the level of chimerism after allogenic hemopoetic stem cell transplantation (alloHSCT) in non-malignant diseases, which may be due to genetic defects of the cells, peculiarities of the hematopoietic environment of the recipient, etc.

AIM OF THE STUDY: To compare the dynamics of chimerism after allogeneic transplantation of hematopoietic stem cells in patients with aplastic anemia (AA) and primary immunodeficiencies (PID).

MATERIALS AND METHODS: Nucleated cells isolation from peripheral blood and bone marrow in patients and their donors before and after alloHSCT; DNA isolation; sorting with fluorescence activated cell sorting (FACS) and magnetic separation technology (MACS); determination of chimerism by STR-PCR and InDel-PCR.

RESULTS: In the study we determined the chimerism level in 18 patients with AA and in 16 with PID. Patients with AA after alloHSCT had full donor chimerism (> 98%) after 35% alloHSCT, full donor chimerism (FDC) with conversion in mixed chimerism (MC) – after 10%, persistent MC – after 10%, increased MC – after 10%, decreasing – after 25%, 0% chimerism (non-treatment) after 10%. Patients with PID had detected FDC after 68.75% alloHSCT, increased MC after 12.5%, decreasing after 18.75%. FDC was more often observed in patients with PID than in patients with AA ($p<0.05$). MC in patients with AA was caused by long persistence of recipient T-lymphocytes, whereas FD%u0421 was often established in other subpopulations. In patients with PID having MC T-lymphocyteswere of donor origin but granulocyteswere represented by recipient cells.

CONCLUSIONS: The level of chimerism is strongly influenced by the primary disease. FDC was more often observed in patients with PID than in patients with AA. MC in patients with AA was caused by long persistence of recipient T-lymphocytes, whereas in patients with PID having MC granulocytes were represented by recipient cells, but T-lymphocytes were of donor origin.