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Abstract (poster session)

Immunological features of invasive aspergillosis in haematological patients after allogeneic haematopoietic stem cells transplantation (allo-HSCT)

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Objective: Invasive aspergillosis (IA) is a major complication in patients after allo-HSCT. However, the immunological features in these patients are not well understood. **Materials and methods:** We studied eleven immunological parameters in 16 hematological patients in which IA developed after allo-HSCT. For the diagnosis of IA criteria EORTS/MSG, 2008 was used. Subpopulations of lymphocytes were determined by immunocytochemical method using a monoclonal antibody «DAKO». Levels of immunoglobulins in the serum were estimated by nephelometric method for protein analyzer «Turbox plus». Blood cell supernatants were tested for IFN-g and IL-10 by using an ELISA test "Cytokine". Phagocytic and killing activity of neutrophils was assessed. Immunological parameters were evaluated in the first 2-4 weeks of IA diagnosis. In the future, patients were followed for 3-6 months. **Results:** The mean age of patients was 28 years (range 11-59), male - 62%. Underlying diseases were: acute myeloid leukemia - 38%, acute lymphoblastic leukemia - 25%, chronic myeloid leukemia - 13%, lymphoma - 12%, chronic lymphocytic leukemia - 6% and myelodysplastic syndrome - 6%. 56% of patients after allo-HSCT have unrelated donors, HLA-matched - 31% and HLA-mismatched donors - 13%. All patients received immunosuppressive therapy. Graft versus host disease was observed in 94%. IA was diagnosed between 18 and 270 days after HSCT (median – 33 days). 12 weeks overall survival was 81%. We identified significant immunological defects in all patients. Lymphocytopenia ($<1,0 \times 10^9/L$) was estimated in 44%, a reduction in the absolute number of T-helper CD4 + ($<0,680 \times 10^9/L$) - 82%, natural killer cells CD16 + ($<0,200 \times 10^9/L$) - 62%. Level of cytotoxic T-cells CD8 + was increased ($>0,700 \times 10^9/L$) along with low production of IL-10 - 87%. Low number of lymphocytes with activation markers - receptors for IL-2 (CD25 +) was found - 62%. humoral immune response was decreased: reduced the number of B-cells (CD20 +) - 68 % of patients, IgG ($<7.0g/l$) and IgM ($<0.4 g/l$) - 63%. 75% of patients have decline of the killing activity of neutrophils, 56% - decrease of IFN-g production ($<500pg/ml$). **Conclusion:** In hematological patients after allo-HSCT the defects of basic mechanisms of the immune response remain pronounced in the first 2-4 weeks of IA diagnosis.