Poster Presentations

PP-05

"Immunogenetics Cerberus" or Donor Selection Problems for a Patient with Major Histocompatibility Complex Triple Haplotype After Acute Myeloid Leukemia Relapse

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Allogeneic hematopoietic stem cell transplantation (allo-HSCT) is one of the most effective treatment for acute myeloid leukemia (AML) patients. At the same time, minimal residual disease and donor chimerism detection is critically important to monitor engraftment level as well as to predict early relapse development. Also, determination of HLA-LOH is vital for managing for immunological consequences of relapse.

The aim of this work was to establish the human leukocyte antigen (HLA)-loss of heterozygosity (LOH) presence or absence to understand the mechanism of immune evasion during relapse in a patient with AML for subsequent donor selection for second allo-HSCT.

Extraction of DNA from peripheral blood was performed using "Genomic DNA from Blood Extraction Kit" (Macherey-Nalel, Germany). For HLA-LOH determination we used SSP Typing Kits (One Lambda, USA) according to the manufacture's protocols.

Male 50 years old patient with AML was transplanted from haploidentical related donor (son). On day +106 the patient was diagnosed with main disease relapse. Post-transplant monitoring data demonstrated partial donor chimerism and hybrid blood group antigens expression (A- from donor and O+ from recipient), indicating incomplete engraftment. After that the patient's samples were directed to our department with suspicion of loss of heterozygosity in *HLA* genes. HLA typing revealed a tri-allelic combination of both donor and recipient alleles, which did not confirm HLA-LOH.

Taking into account obtained results, clinico-biological recommendations for the selection of the next donor and therapeutic treatment options of patients with similar immunogenetic changes are extremely complicated.

PP-06

Comparison of Higher Resolution of Sequence Spesific Oligonucleotide Probe vs. Next Generation Sequencing for HLA-A, B, C and DRB1 Typing

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The objective is to determine the accuracy and the level of resolution of higher resolution of sequence spesific oligonucleotide probe (SSO) vs. next generation sequencing (NGS).

Twenty-eight samples from bone marrow donors and 10 HR BEPT 2024 samples were included in the study. DNA samples were extracted using Maxwell RSC Whole Blood DNA Kit (Promega). Human leukocyte antigen (HLA) typing was done using LabType XR Class I A, B, C and Class II DRB1 Typing Test (One Lambda) and AllType FASTPlex NGS 11 Loci Flex Kit (OneLambda). All tests were done according to manufacturer's instructions using LabScan3D for SSO and iseq 100 (illumina) for NGS. Our study was funded by Ege University Office of Scientific Research Projects with project number 31968.

A total of 304 alleles from 38 samples were typed with both methods for HLA-A, B, C and DR loci. The results were concordant with NGS at low resolution except for two (0.65%) assingments for one specimen, which produced no result for HLA-C. High resolution typing results were concordant except for two (0.65%) ambiguities and two (0.65%) assignments among three samples. The HLA-A*23:01 NGS result was A*23:CJT (01/17) with SSO and HLA DRB1*14:54 with NGS was DRB1*14:BCAD (01/54). Low resolution HLA-B result could be obtained for one sample (B*27 B*35). All discordant results were tested in duplicate.

Among 304 alleles, 6 (1.97%) either produced no result or was discordant with NGS.

NGS should be used where available for highly sensitized kidney transplant candidates. Higher resolution SSO may be helpful when NGS isn't available and for deceased donors.