

ABSTRACT

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Title of diploma thesis: Genetic markers for monitoring post-transplant chimerism

The aims of the thesis: Data processing of patients, who underwent allogenic hematopoietic stem cell transplantation in a period from 2010 to 2014 in University Hospital Hradec Kralove and whose state of chimerism was monitored at the Section of Molecular Biology at the Institute of Clinical Biochemistry and Diagnostics. Consequently, analysis of the possible relationship between selected clinical parameters and used genetic markers for chimerism quantification was carried out after the processing of acquired data. Finally, the possible influence of treatment success and mortality by chosen clinical parameters was evaluated.

Methods: Analysis of short tandem repeat loci, which uses genetic variability between donor and recipient of transplanted graft, was employed for quantification of post-transplant chimerism. DNA of donor and recipient was isolated by QIAmp DNA Blood Mini Kit (QIAGEN, Germany), amplified by AmpFISTR Identifier Kit (Applied Biosystems, USA) and separated by capillary electrophoresis (analyzer ABI 3130-4, Applied Biosystems, USA).

Conclusion: Markers D21S11, D2S1338, THO1, FGA a D3S1358 were among the most informative ones. Proceeded parallelly, they were sufficient for finding at least one informative and useful marker for chimerism quantification in the patients from the analyzed group. Transplantation couples with the 10/10 antigens in HLA system had statistically less useful markers, as well as the relational couples. Higher age and diagnosis of chronic lymphatic leukemia were proven as a negative prognostic factor for treatment success and post-transplant mortality.