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Abstract (poster session)

Immunoglobulin and/or T-cell receptor clonality and Epstein-Barr virus infection outcome in paediatric liver transplant recipients

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Objectives: Paediatric liver transplant (LTx) patients (pts) are at particular risk of developing EBV associated complications, including PTLD (posttransplant lymphoproliferative disorder).The risk of PTLD is higher in pts with high viremia. However, among transplant recipients is a group of pts with chronically high viral load (CHVL) who do not develop lymphoproliferations, so there is a need for new prognostic markers to identify pts at risk of serious complications. The B- and T-cell clonality analysis in association with EBV DNA load testing might be more informative and effective in monitoring EBV infection in immunosuppressed pts, allowing earlier detection of EBV related lymphoproliferations and therapeutic intervention in time.The aim of this study was to assess the clonality of immunoglobulin (Ig) and T-cell receptor (TCR) gene rearrangement in peripheral blood and tissues from children after LTx in relation to EBV DNA level, CHVL and PTLD development. Methods: One hundred thirty children (median age at LTx: 1.3, range:0.11-18.6 y) with minimum 12-month follow-up after LTx (median 38 m, up to 140 m) were included in this study. PTLD was confirmed in 9 pts. The clonality of Ig/TCR rearrangement was determined in 423 blood samples collected for routine EBV load testing after LTx, by multiplex PCR and heteroduplex analysis using BIOMED-2 protocol. The clonality analysis was also performed in 39 paraffin-embedded tissues from 20 pts (including 9 tissues with histopatologically confirmed PTLD from 5 pts) and compared with paired blood samples. Results: Overall, clonal Ig/TCR rearrangements were detected in 6/9 (75%) pts with PTLD and in 78/121 (65%) pts without PTLD, including 24/36 (67%) CHVL-carriers. No difference was observed according to the frequency and type of Ig/TCR clonality detected in blood between PTLD, CHVL and other LTx pts (Fig.). Ig/TCR rearangements in multiple blood samples and tissue samples from pts with and without PTLD, revealed dynamic changes in patterns of the clonal rearrangement and no correlation with EBV DNA load. Moreover, rearrangement detection in tissue was not preceded by its detection in blood. When analysis was performed in paired blood and tissue samples, the presence of clonal Ig/TCR in blood was not always detected in tissue, and vice versa. Conclusion: The analysis of Ig/TCR gene rearrangements had no prognostic value for EBV infection outcome in pts after LTx.