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P0500 Prospective Epstein-Barr virus DNA-emia monitoring in parallel whole blood and plasma samples in paediatric liver transplant recipients including chronically high viral loads carriers

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Background: Monitoring of Epstein–Barr virus (EBV) DNA in liver transplant (LTx) patients is useful in post-transplant patient management. However, routine long-term EBV load monitoring in whole blood (WB) identified a group of patients with chronic high viral loads (CHVL) in the absence of clinical symptoms. It is unclear weather VL in WB correlate with those in plasma in CHVL patients. The aim of this study was to compare EBV-DNA loads in WB and plasma of pediatric LTx patients, including CHVL carriers.

Materials/methods: Five hundred and twenty-six matched WB and plasma samples were prospectively collected from 206 pt after LTx (426 samples from 106 patients consisted of multiple collections; median 3/pt) between October 2016 and September 2017. The EBV-DNA level in WB and plasma was measured by real-time PCR (LLQ 1.7 $\log_{10}$copies/mL). The EBV-DNA levels and dynamics of VL changes were compared between WB and plasma. CHVL carriage was defined as the presence of high EBV loads (>3.7 $\log_{10}$copies/mL) for >50% samples for ≥6 months.

Results: EBV-DNA was detected in at least one sample in 145/206 (56.6%) patients in WB and in 65/206 (31.5%) in plasma. EBV-DNA was detected only in WB in 167/426 (39.2%) samples, only in plasma in - 5/426 (1.1%), and in both specimen types in - 174/426 (40.8%). The median VL in WB was 2.8 $\log_{10}$copies/mL (IQR 1.7 - 3.6) when plasma VL was negative. When EBV-DNA was detected in both sample types, the median VL was 4.3 $\log_{10}$copies/mL (IQR 3.9 - 4.6) in WB and 1.7 $\log_{10}$copies/mL (IQR 1.7 - 2.4) in plasma (r^2 = 0.25, p=0.001). WB levels were on average 2.3 log higher in WB than in plasma (Figure). Twenty-seven (13.1%) patients met definition of being CHVL carriers with median VL of 4.5 $\log_{10}$copies/mL in WB, whereas median VL in plasma was 1.7 $\log_{10}$copies/mL (approaching the LLQ). VL was undetectable in at least one plasma sample in 20/27 (74%) patients, throughout the CHVL state. None of these patients developed PTLD.

Conclusions: The clinical significance of persistently high VL in WB in the presence of low and/or undetectable VL in plasma warrants further studies.

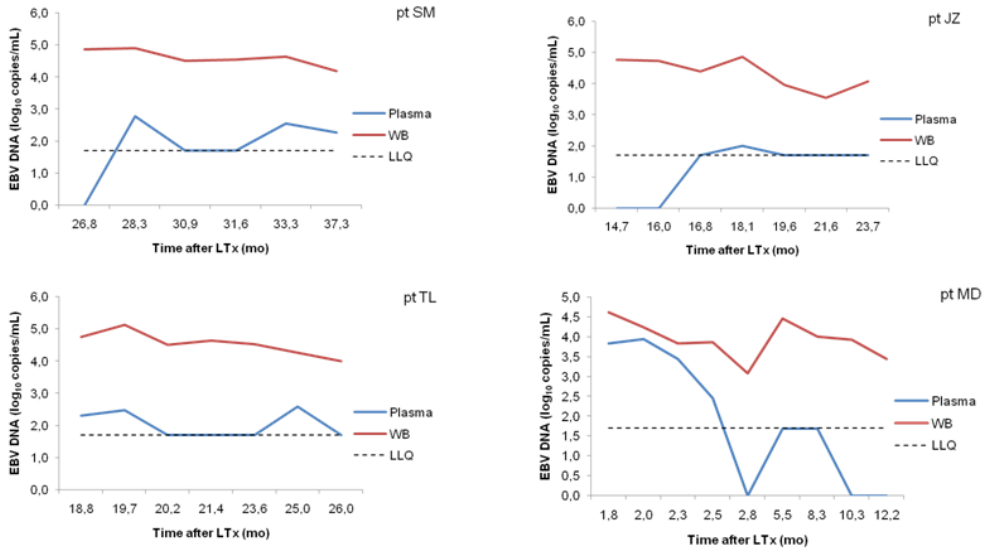

Figure. Longitudinal EBV DNA loads in matched whole blood (WB) and plasma samples in selected patients with chronically high viral loads (in WB). LLQ – lower limit of quantification (1.7 log_{10} copies/mL).