O206

2-hour Oral Session

Human herpes virus (HHV)-6B and HHV-7 viraemia in paediatric liver transplant recipients: correlation with clinical and virological course

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Objectives

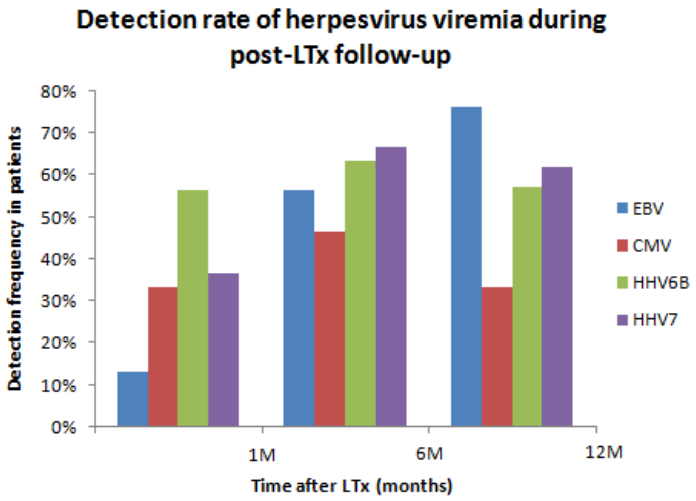
The significance of HHV-6B and HHV-7 DNAemia in solid organ transplant recipients is poorly understood, especially in paediatric patients. It has been suggested that these viruses may be implicated in an acute graft rejection, graft dysfunction and risk of subsequent opportunistic infection including cytomegalovirus (CMV) disease. The aim of this study was to investigate the HHV-6B and HHV-7 DNAemia in relation to Epstein-Barr virus (EBV) and CMV co-infection, and clinical outcomes in paediatric liver transplant (LTx) recipients.

Methods

Thirty-one paediatric patients (19 females and 12 males), who underwent LTx at the Children's Memorial Health Institute in Warsaw between October 2007 and January 2014, were included in this ongoing study. Median age at the time of LTx was 1.8 years (range 0.47–18.0 years). A longitudinal analysis of HHV-6B, HHV-7, EBV, CMV- DNAemia was performed by real-time PCR (qualitative for CMV and HHV-7, and Quantitative for EBV and HHV-6B), in multiple whole blood samples collected within the first 12 months after LTx (median = 8 samples per patient, range 3–27). Virological data were related to clinical outcome.

Results

Detection rates of HHV-6B, HHV7, CMV and EBV within the 12- months post-LTx follow-up, are shown in Figure.



During post-transplant period 24 (77.4%), 21 (67.7%), 21 (67.7%) and 22 (71.0%) LTx recipients tested positive at least once for HHV-6B, HHV-7, CMV, and EBV, respectively.

Median time to first positive sample was: 0.52; 1,17; 1.37 and 2.17 months for HHV-6B, HHV-7, CMV and EBV, respectively. The presence of both HHV-6B and HHV-7 was detected in 15/31 (48.4%) patients consecutively (10 patients, with the first positive testing for HHV-6B, preceding that for HHV-7 in 8 of them) or simultaneously (5 patients). Only one patient remained HHV-6B and HHV-7 free during the study period. Median peak of HHV-6B load was 2.79 $\log_{10}$ copies/mL (range 2.18 – 4.68 $\log_{10}$ copies/mL).

High (> 3 $\log_{10}$ copies/mL) HHV-6B loads were observed in 9/24 patients (in 3cases during acute graft rejection). When viral interactions were evaluated, only HHV-7 and EBV detections were associated ($p = 0.02$) but EBV DNA loads did not differ between patients with and without detectable HHV-7 DNA. In addition, neither HHV-6B nor HHV-7 viremia were associated with active CMV infection.

Among children who experienced biopsy-proven acute graft rejection, HHV-6B and/or HHV-7 were detected prior to or at rejection episode in 9 out of 10 patients (in 8 cases HHV-6B and HHV-7 were the only viruses detected).

Conclusion

The preliminary results of this ongoing study indicate that HHV-6B and/or HHV-7 viremia occur frequently in paediatric liver transplant recipients, preceding EBV or CMV-DNAemia in majority of them. HHV-6 and/or 7 viremia may be associated with acute graft rejection in children after LTx but not with active CMV infection.