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P0666 BKV, CMV and EBV infections in paediatric kidney transplant recipients: results from one-centre observational study

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Background: BK virus (BKV), cytomegalovirus (CMV) and Epstein-Barr virus (EBV) cause opportunistic infections after kidney transplantation (KTX). Even subclinical infection with these viruses might lead to deterioration of graft function. The aims of this study were to analyze prevalence of BKV, CMV or EBV infections and their combined impact on graft function in pediatric KTx recipients.

Materials/methods: One hundred and ninety-six consecutive pediatric KTx recipients (mean age at KTx 7.8 ±4.2 years) were included in this study between January 2016 and October 2018. BKV, CMV, EBV DNA in whole blood (viremia) and BKV DNA in urine (viruria) were routinely measured as a part of surveillance protocol after KTx. Only samples with simultaneously determined BKV, CMV and EBV viremia were included. Overall, 266 blood and 248 urine samples were collected at mean time of 5.2 ±3.4 years after KTx. In parallel, clinical data, including graft function (serum creatinine and estimated glomerular filtration rate (eGFR) measured using Schwartz Pediatric eGFR formula) were collected.

Results: Overall prevalence of BKV, CMV, and EBV viremia was 3.1%, 4.1% and 38.7%, respectively. Mean ±SD viremia load was 4.3 ±1.4, 2.7 ±0.5 and 3.2 ±0.8 $\log_{10}$copies/mL, respectively for BKV, CMV, and EBV. Prevalence of BK viruria was 36.5% (mean load 4.5 ±1.8 $\log_{10}$copies/mL). Beyond the first post-KTx year (with high prevalence of patients with BKV viruria and viremia), the highest prevalence of patients with BK viruria and/or EBV viremia was observed (Figure). Twenty-nine patients (15%) had BKV and EBV coinfection and 3 out of these patients had also CMV-viremia detected. Serum creatinine level was higher (median 1.11 mg/dL, IQR 0.38 - 1.31 vs 0.84 mg/dL, IQR 0.68 -1.16) and eGFR was lower (60.3 mL/min/1.73 m^2, IQR 53 - 67.5 vs 66.5 mL/min/1.73 m^2, IQR 53 - 87.2) in patients with concomitant BKV, EBV and CMV infection when compared to patients with BK viruria-only, albeit observed differences did not reach statistical significance.

Conclusions: BKV viruria and EBV viremia were most frequent among pediatric patients after KTx. Graft function tend to be impaired in patients with BKV/EBV and CMV coinfection. Studies in larger patients populations are warranted.

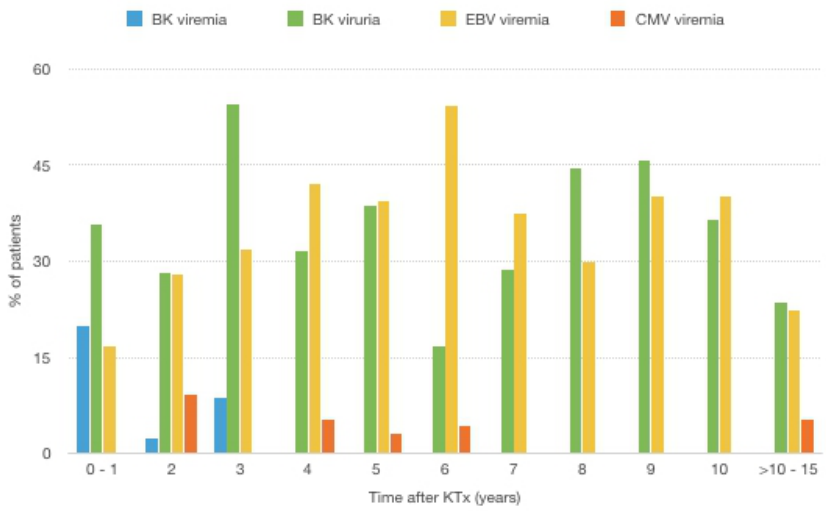

Figure. Prevalence of BKV, CMV, EBV viremia and BKV viruria according to time after KTx

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