ANTI-EBNA SEROCONVERSION AND RISK OF EBV-RELATED PTLD IN PEDIATRIC RENAL TRANSPLANT RECIPIENTS

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Introduction and Aims

EBV-related post-transplant lymphoproliferative disorder (PTLD) is one of the most serious complications associated with kidney transplantation (KTx) especially in pediatric recipients. In general pediatric population, anti-Epstein Barr Nuclear Antigens (EBNA) seroconversion after EBV infection is a marker of resolution of active infection, while the lack of EBNA-IgG is related with chronic active EBV infection.

Our aim is to evaluate the correlation between anti-EBNA seroconversion and EBV-related PTLD onset in a renal transplanted pediatric cohort.

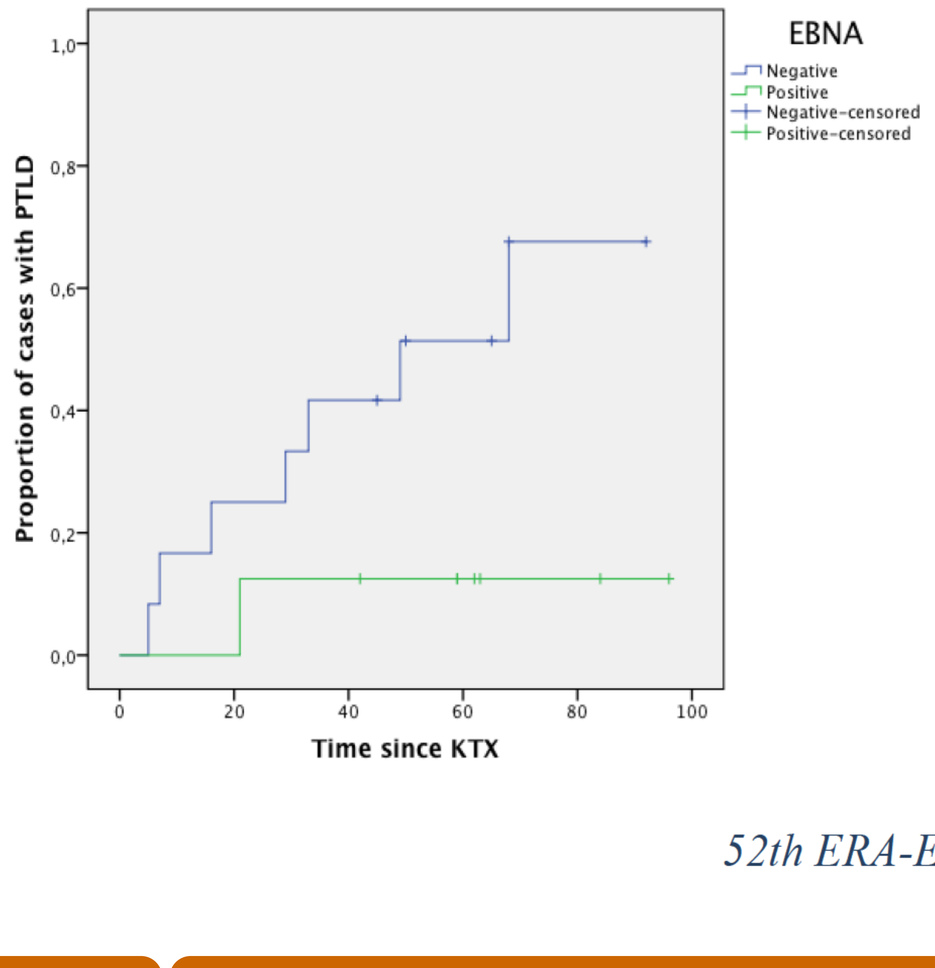
Methods

We retrospectively reviewed 144 children undergoing KTx at our department between 2005 and 2012. We included 108/144 patients with at least 2 years follow-up after KTx and with regular monitoring of EBV-DNA viral load (real-time PCR assay, positive if > 1.000 copies/mL) and EBV serology.

Results

At the time of transplant, 62/108 (57,4%) patients were anti-EBNA seropositive; during follow-up 12/62 (19%) had a positive EBV viremia (median viral load of 4.426 copies/mL [interquartile range 2.286-10.468], but no patients developed PTLD.

Of the 46/108 (42.6%) EBNA-IgG negative patients, 20 (43%) had a positive EBV viremia (median viral load of 40.475 copies/mL [IQR 19.188-364.405]) at a median time after KTx of 5 months (IQR 2-9). At a median time of 6 months after viremia positivization (IQR 0.75-25), 8/20 (40%) patients had anti-EBNA seroconversion: only one out of these 8 cases (12.5%) developed PTLD. The 12 remaining cases (60%) that had a positive EBV viremia persisted anti-EBNA seronegative and, among these, 7/12 (58.3%) had PTLD. A survival analysis using Kaplan-Meyer method (applied to pre-transplant EBNA-IgG negative recipients) showed a slightly significant difference in PTLD occurrence between patients with and without anti-EBNA seroconversion after viremia positivization (p=0.07, log-rank test, figure below). In Cox-regression analysis, anti-EBNA seronegative status was associated with a higher risk of PTLD occurrence (HR 5.59 95% CI 0.99-45.5; p=0.062). There was no statistically significant difference regarding age and sex distribution, underlying disease, maximum viral load, time of exposure to the virus, time of viremia positivization after KTx and immunosuppressive therapy between recipients with and without PTLD.



Conclusions

Our preliminary results suggest that pre-transplant EBNA-IgG positive recipients had lower risk of EBV-DNA positivization and PTLD onset after KTx. Pre-transplant anti-EBNA seronegative children are at higher risk of having positive EBV viremia and patients who remain EBNA-IgG negative after viremia positivization have higher risk of PTLD onset.

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