CHRONIC HIGH EPSTEIN-BARR VIRAL LOAD CARRIAGE IN PEDIATRIC RENAL TRANSPLANT PATIENTS

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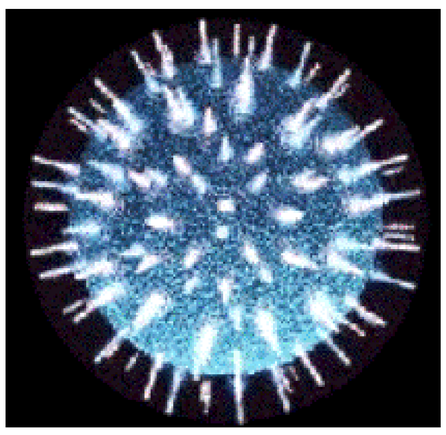
CHL CARRIAGE OCCURRED FREQUENTLY (24%) AMONG YOUNG CHILDREN UNDERGOING RENAL TRANSPLANTATION BUT NO CHILD DEVELOPED PTLD, POSSIBLY BECAUSE OF CAREFUL FOLLOW-UP AND REDUCED IMMUNOSUPPRESSION



Background

Epstein-Barr virus (EBV) infection is of particular interest in transplanted children because of the association with post-transplant lymphoproliferative disorder (PTLD).

Of special interest are patients with chronic high Epstein-Barr viral load in peripheral blood (CHL), defined as the presence of EBV DNA ≥4.2 log in >50% of samples for ≥ 6 months.

Purpose

To identify the children with CHL and to evaluate what characterizes them and how the EBV PCR levels varies according to different actions.

Method

58 children underwent renal transplantation at the age of 1-17 years (median 10 years) at the Queen Silvia Children's Hospital in Gothenburg, Sweden between 2004 and 2017. Immunosuppression included tacrolimus, mycophenolate-mofetil, steroids and after 2010 induction with two doses of basiliximab. The serostatus of EBV was analysed before transplantation and yearly thereafter. Analyses of EBV DNA using PCR were performed every week during the first three months post-transplant, once monthly up to one year and thereafter according to PCR status. CMV-prophylaxis with valganciklovir/ganciclovir was given for 3-6 months except in cases with CMV D-/R-.

Table 1. Patient characteristics

Characteristics	CHL N=14	All patients N=58
Median age at tx	2 yrs	10 yrs
Living donor	13 (93%)	44 (76%)
EBV D+/R- mismatch	10 (71%)	28 (48%)
Primary EBV	11 (79%)	25 (43%)
Rejections	3 (21%)	17 (29%)

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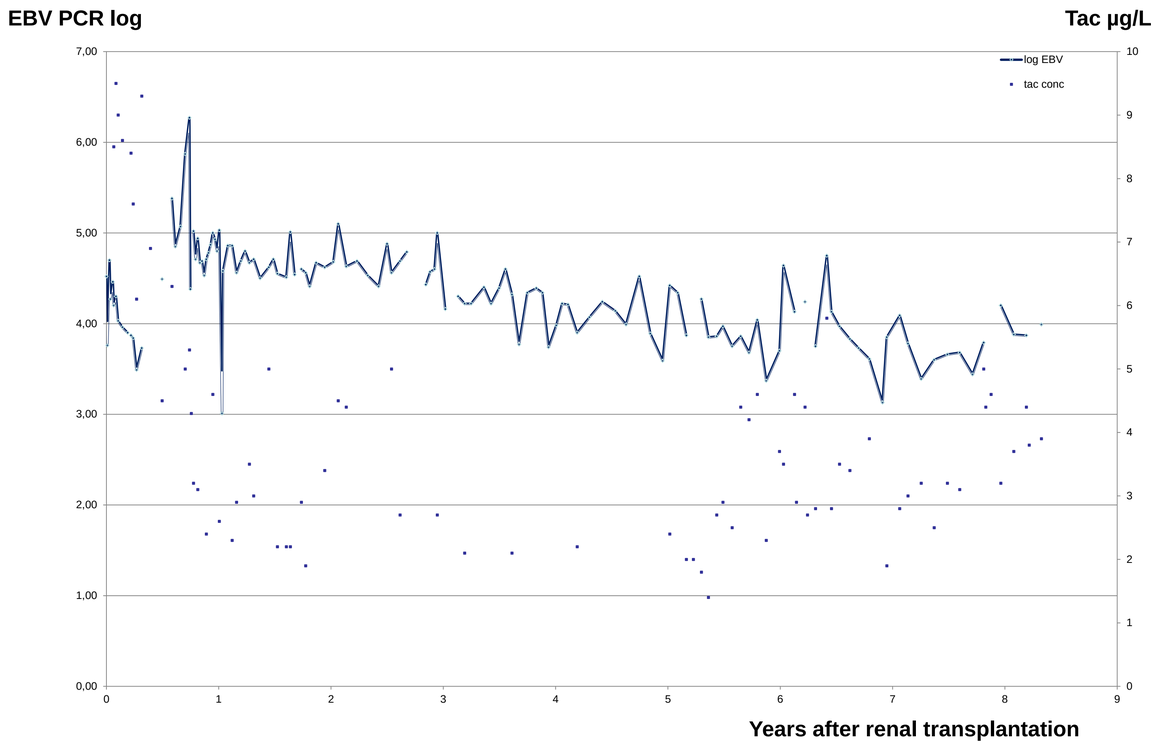
Results

At transplantation 31 patients (53%) were EBV seronegative. Following transplantation, 25 seronegative patients (81%) developed a primary EBV infection based on the results of PCR assays for EBV DNA. Among the 27 seropositive patients 20 (74%) developed a reactivation of EBV. 11 of the seronegative and 3 of the seropositive patients became CHL after a median of 69 days (range 0-278 days). The median GFR 3 months after transplantation was 82 ml/min/1.73 m^2 compared with 69 ml/min/1.73 m^2 in the remaining 44 patients.

The clinical presentation during CHL was non-specific or asymptomatic. The immunosuppression was carefully evaluated and reduced in CHL carriers. This group was younger at transplantation, had more often living donors, fewer rejections despite reduced immunosuppression and were more often EBV mismatch (Table 1). None of the children developed PTLD during the follow-up of median 8.4 years (0.7-13 years).

13/14 children were CHL >1 year (1.3-6 years) despite minimal immunosuppression.

A boy with diseased donor renal transplant at 2 years of age. He had CHL >6 years and was on minimal immunosuppression with low dose tac and alternate day steroids.



Conclusions

58 children underwent renal transplantation at the Queen Silvia Children's Hospital, Gothenburg between 2004 and 2017. 31 were EBV IgG negative at transplantation. In total 14 children (24%) became CHL EBV carriers after a median of 69 days post-transplant. By monitoring the PCR EBV values, reducing immunosuppression and carefully evaluating clinical signs we might have prevented development of PTLD despite CHL for many years.

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