

Blood Epstein-Barr viral load (BEBVL) monitoring after hematopoietic stem cell transplantation: dynamics of reactivation and effect of preemptive rituximab

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Background

Epstein-Barr virus (EBV) displays oncogenic properties, particularly after hematopoietic stem cell transplantation (HSCT). Therefore, blood EBV viral load (BEBVL) is monitored after HSCT to detect patients at risk of developing EBV-associated post-transplant lymphoproliferative diseases (PTLDs). However, little is known about the dynamics of post-HSCT BEBVL and the threshold requiring anti-CD20 preemptive therapy.

Material/methods

We retrospectively analyzed the post-HSCT BEBVL of all 332 adult HSCT recipients in our center from 2005 to 2013.

For each patient, a mean of 9.8 BEBVL was measured during the first post-transplantation 3 months, and a mean of 23.9 during the first year.

Seventy-eight patients received preemptive rituximab, leading to a decrease of BEBVL in most patients (fig. 3).

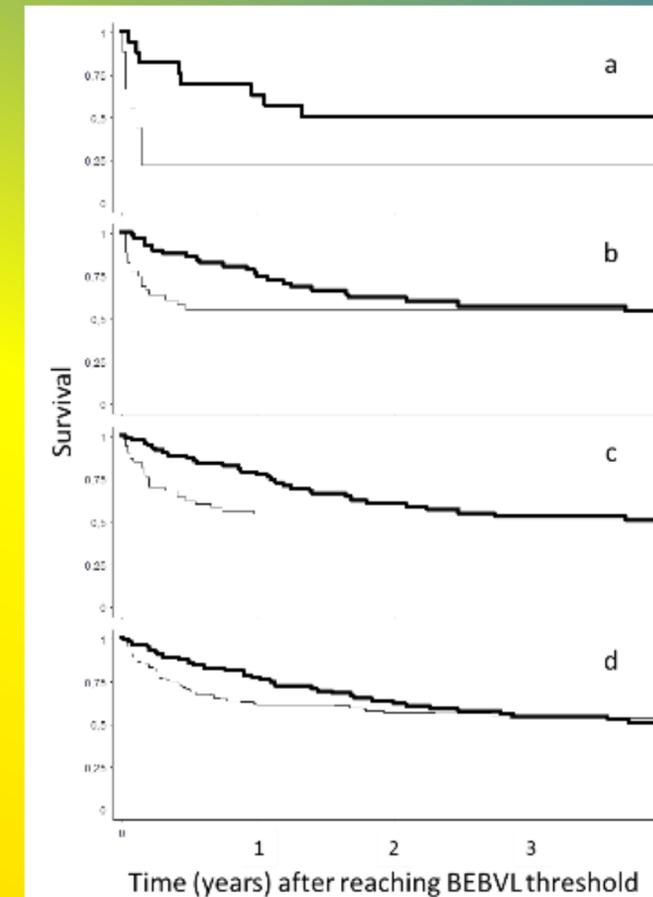
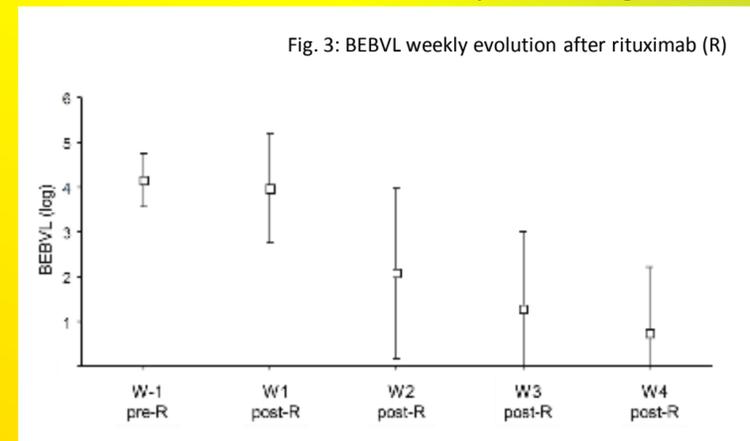


Fig. 4: Survival **with** and without rituximab after reaching a BEBVL above a) 50,000, b) 10,000, c) 5,000, d) 1,000 copies/ml.

Long-term survival of rituximab-treated patients did not differ, except for patients with BEBVL $\geq 50,000$ copies/ml (fig. 4). Only one case of PTLD was observed.

Conclusions

BEBVL is frequently detectable early and late after HSCT. No strong association with prognosis is suggested. Long-term benefit of preemptive rituximab is unclear.

Results

BEBVL ≥ 100 , 1,000, 5,000, 10,000, and 50,000 copies/mL was detectable in respectively 77.7%, 69.6%, 37.0%, 27.1%, and 7.5% of the patients after a respective median time of 9, 14, 15, 16, and 14 weeks (fig. 1 & 2). Maximum BEBVL was 100–1,000, 1,000–5,000, 5,000–10,000, 10,000–50,000 and $\geq 50,000$ copies/mL in respectively 8.1%, 32.5%, 9.6%, 19.9%, and 7.5% of the patients.

No BEBVL threshold was associated with an overall survival.

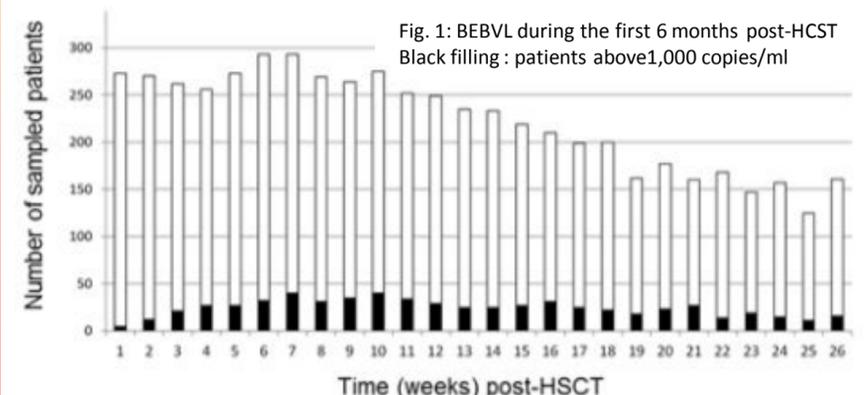


Fig. 1: BEBVL during the first 6 months post-HSCT
 Black filling : patients above 1,000 copies/ml

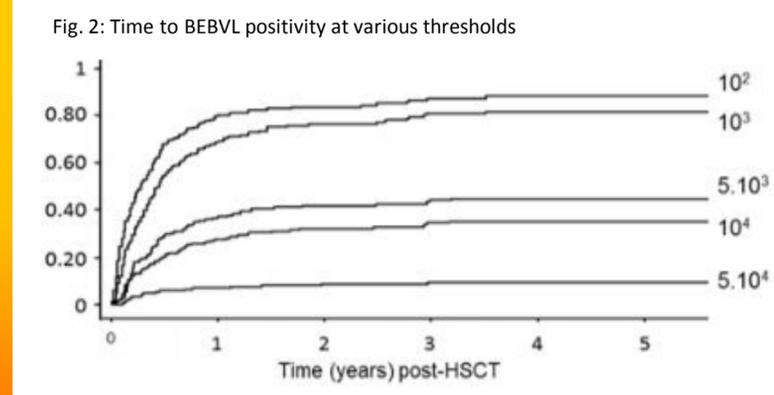


Fig. 2: Time to BEBVL positivity at various thresholds