

(PF1153) PREDICTIVE VALUE OF EASIX SCORES AT DIFFERENT TIME POINTS FOR PTLD AND SURVIVAL IN PATIENTS WITH EBV REACTIVATION AFTER ALLOGENEIC HEMATOPOIETIC STEM CELL TRANSPLANTATION

Topic: 23. Stem cell transplantation - Clinical

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Background

EBV reactivation is a frequent complication after allo-HSCT, with widely varying reported rates of progression to post-transplant lymphoproliferative disorder (PTLD). Recent factors like the SARS-CoV-2 pandemic and letermovir prophylaxis may further increase EBV risks. Given PTLD's high mortality and the lack of early predictive biomarkers, new tools are urgently needed. The Endothelial Activation and Stress Index (EASIX), an endothelial damage marker linked to allo-HSCT outcomes and lymphoma-associated HLH survival, offers potential for early PTLD prediction and prognostication.

Aims

Our aim was to validate whether EASIX scores at different time points after post-transplant EBV reactivation could predict the progression to PTLD and clinical overall survival (OS).

Methods

A total of 126 patients who underwent allo-HSCT and developed EBV viremia between 2024 and 2025 in several transplantation centers of China were included in this study. EBV reactivation was identified when the viral load surpassed 1×10^4 copies/ml from whole blood samples. The diagnosis of PTLD was made in accordance with the guidelines established by the ECIL-6. A log transformation using base 2 (log2) was applied to EASIX scores to reduce skewness.

Results

Among 126 allo-HSCT recipients who developed EBV viremia, 66 (52.4%) patients developed PTLD (28 probable and 38 proven). The median EASIX scores in PTLD patients were significantly higher than those in patients with EBV viremia alone at three key time points: the day of EBV reactivation (EASIX0) (median 2.6, IQR 1.3–4.2 vs. median 2.08, IQR 1.2–3.24), day 7 post-reactivation (EASIX7) (median 2.72, IQR 1.84–5.35 vs. median 2.16, IQR 1.41–3.92), and the day of peak EBV viral load (EASIXhighest) (median 4.92, IQR 2.24–51.92 vs. median 2.5, IQR 1.3–5.1). Both univariate and multivariate logistic regression analyses identified EASIX0 (per log2 increase: OR, 2.257; 95% CI, 1.512–3.371; $P < 0.001$), EASIX7 (per log2 increase: OR, 1.936; 95% CI, 1.378–2.72; $P < 0.001$), and EASIXhighest (per log2 increase: OR, 1.834; 95% CI, 1.384–2.43; $P < 0.001$) as independent risk factors for the development of PTLD. Donor type, time from transplantation to EBV reactivation, viral load, conditioning regimen, and patient age were not associated with the occurrence of PTLD. ROC curve analysis revealed that the AUCs for EASIX0, EASIX7, and EASIXhighest were 0.741, 0.747, and 0.78, respectively (Figure 1A). Multivariate Cox regression analysis identified higher EASIX0 (per log2 increase: HR, 1.402; 95% CI, 1.146–1.714; $P = 0.001$), EASIX7 (per log2 increase: HR, 1.430; 95% CI, 1.191–1.716; $P < 0.001$), and EASIXhighest (per log2 increase: HR, 1.315; 95% CI, 1.167–1.482; $P < 0.001$) scores as independent risk factors for OS (Figure 1B–D).

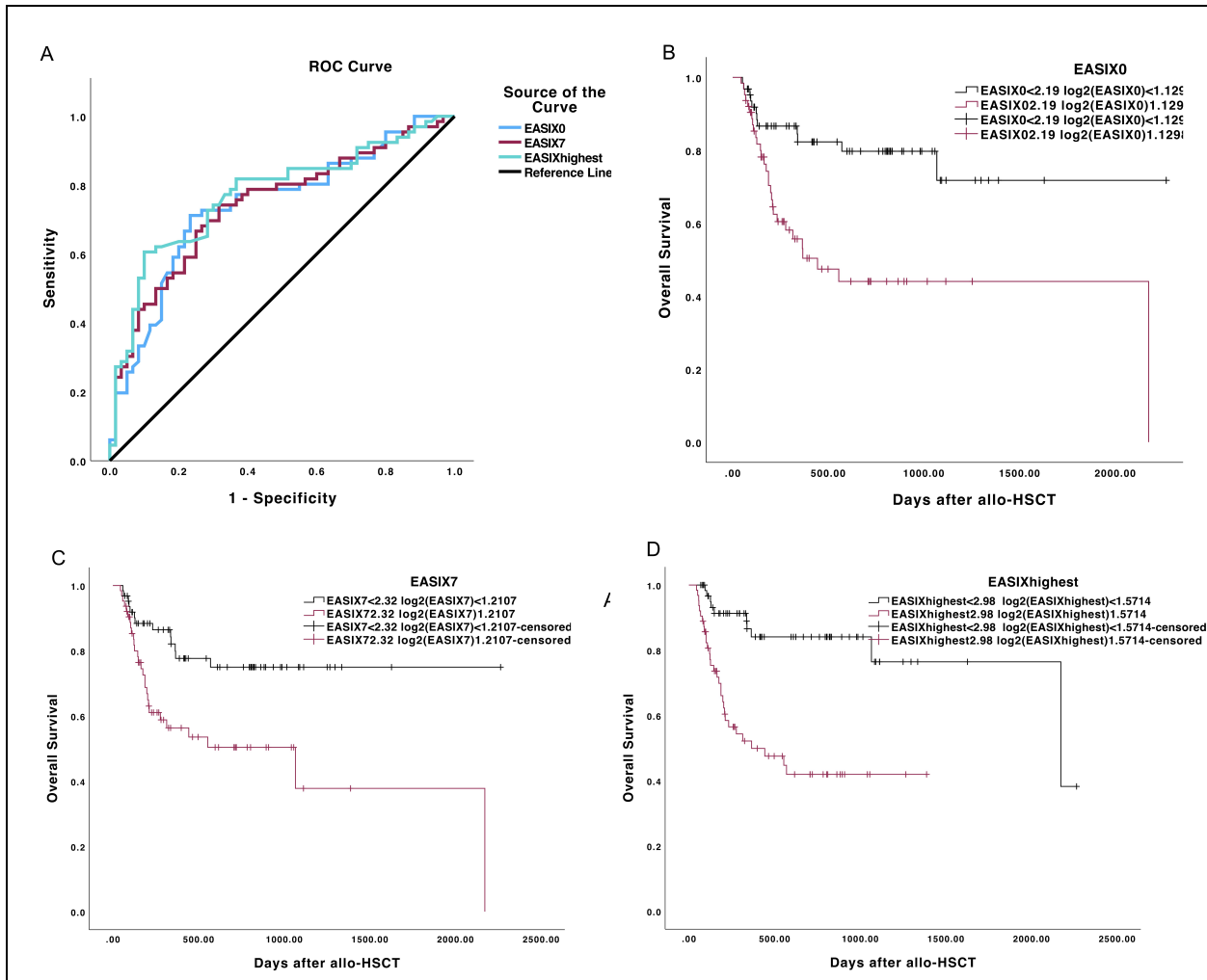
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Summary/Conclusion

In conclusion, EASIX scores at different time points following EBV viremia serve as effective predictors for PTLD. Crucially, EASIX0 and EASIX7 allow for the early assessment of disease severity, thereby enabling earlier pre-emptive interventions. Additionally, EASIX scores demonstrate a strong association with early mortality risk. Therefore, our findings support EASIX as a robust, universally accessible predictive marker for PTLD and a prognostic marker for outcome following EBV reactivation after allo-HSCT.



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