LETTER TO THE EDITOR

Preemptive EBV-specific T-cell therapy: An emerging prophylactic approach to PTLD reduction and survival benefit in SOT recipients

Abdul Rehman Shahid Khan[1], Roma Bai[2]

Dear Editor, Approximately 90% of the population worldwide is infected with the Epstein-Barr virus (EBV), a double-stranded DNA gamma herpesvirus.[1] While it affects a large portion of the population, EBV poses a significant risk to individuals undergoing solid organ transplantation (SOT). In these patients, the use of immunosuppressants weakens the immune response, allowing EBV to target naïve B cells, transforming them into rapidly dividing blasts. This may result in posttransplant lymphoproliferative disorders (PTLD).[2] PTLD, a diverse group of cancers, is the second most common malignancy in SOT recipients and is the leading cause of cancer-related death in this population.

In SOT recipients, the risk of developing PTLD differs mainly based on the EBV serostatus of the donor and recipient and the immunosuppressive treatment regimen employed. EBV-seronegative transplant recipients face the highest incidence of PTLD, as they are susceptible to primary EBV infection after transplantation. Compared to EBV-seropositive recipients (R+), the relative risk of PTLD in EBV-seronegative individuals (R–) ranges from 2.6 to 9.9.[4]

Considering the severity of the disorder, a recently emerging approach for preventing EBV-related PTLD that involves the use of donor-derived or third-party EBV-specific cytotoxic T lymphocytes (CTLs) has been implemented. The effectiveness of CTLs has been shown for over a decade, with previous studies reporting a 95% success rate in subsiding EBV viraemia and a 65%-88% success rate in treating PTLD, even in cases where conventional rituximab treatment failed.[5] In one observational study of 21 high-risk SOT recipients who received autologous EBV-specific CTLs, only one patient developed PTLD. Although limited by access and HLA compatibility, which posed a challenge for its wide applicability, it is still emerging as a transformative therapy for the prevention of EBV-related PTLD in SOT recipients.

To conclude, this letter aims to emphasize the importance of preemptive T cell therapy, particularly the use of EBV-specific CTLs, as a promising strategy for the prevention of PTLD in SOT patients. This is especially crucial for high-risk individuals, such as EBV-seronegative individuals (R–). Given the high incidence of PTLD, preemptive T cell therapy has demonstrated significant potential in reducing EBV viremia and preventing the onset of PTLD. We advocate for the implementation of preemptive T cell therapy in high-risk transplant recipients to reduce the burden of PTLD and enhance long-term clinical outcomes in this vulnerable cohort.

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[1]Department of Medicine, Lahore General Hospital, Lahore, Pakistan;
[2]Department of Medicine, Peoples University of Medical and Health Sciences, Nawabshah, Pakistan.
Correspondence: A.R. Shahid Khan. e-mail: abdulrehmanshahidkhan480@gmail.com
ORCID ID: 0009-0002-4885-0410

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