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Early evidence of lymphoproliferative disorder: post-transplant monitoring of Epstein-Barr infection in adult and pediatric patients

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SUMMARY

Transplant patients are at high risk of post-transplant lymphoproliferative disorder (PTLD). A strong correlation between Epstein-Barr virus (EBV) and PTLD is observed in pediatric patients with primary infection after transplant. Because many patients have responded to reversal of immunosuppressive therapy, an early identification of EBV is essential for the reduction of immunosuppression and/or introduction of antiviral therapy to prevent PTLD. Polymerase chain reaction (PCR) is a specific and sensitive method to identify EBV DNA in blood. The aim of our study was to establish a protocol for monitoring EBV infection in transplanted patients for early identification those at high risk of PTLD.

Viral presence in peripheral blood leukocytes (PBL) and serum samples was revealed by Nested PCR; positive specimens were quantified with Real Time PCR (RT-PCR).

DNA in PBL was observed in 12 cases and 6 showed EBV in sera. Quantitative analysis showed a wide range of EBV DNA copies in leukocytes that were higher than in sera. Two patients displayed high viral load values in both PBL and sera associated with clinical evidence of PTLD.

Our data suggest that the study of the EBV load represents an essential approach in the diagnosis of PTLD and the analysis of serum samples could provide useful information in the post-transplant monitoring of high-risk patients.

KEY WORDS: Organ transplantation, B lymphocyte proliferation, Quantitative polymerase chain reaction

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INTRODUCTION

Epstein-Barr virus (EBV, Family *Herpesviridae*, subfamily *Gammaherpesvirinae*, species *Epstein-Barr virus*) is a widespread human-gamma herpes virus with oropharyngeal epithelial cells and B-lymphocyte tropism. Long after primary infection, EBV is associated with a wide variety of neoplastic diseases. A strong correlation has been found between EBV and Burkitt's lymphoma and nasopharyngeal carcinomas. Several authors also reported EBV association with Hodgkin's and non-Hodgkin's lymphoma, gastric adenocarcinoma, several types of sarcoma and lymphoepithelioma-like carcinoma (Barr et Epstein, 1964; Chen *et al.,* 1993; Glaser *et al.,* 1997; Hummel *et al.,* 1995; Iezzoni *et al.,* 1995; Imai *et al.,* 1994).

In recent years, the role of EBV in the etiopathogenesis of B-cell lymphoma in immunosuppressed individuals has also been recognized

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