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Virologia

A BI-CENTRIC LONGITUDINAL ANALYSIS OF HCMV-SPECIFIC T-CELL IMMUNE RESPONSE AMONG KIDNEY TRANSPLANT RECIPIENTS (KTRS)

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INTRODUZIONE

Human Cytomegalovirus (HCMV) is one of the most relevant viral infection among solid organ transplant recipients. The aim of this bi-centric prospective study was to analyze HCMV-specific T-cell response in kidney transplant recipients (KTRs) in relation to HCMV reactivation and the onset of related-diseases.

METODI

50 KTRs were recruited at IRCCS Policlinic San Matteo (Pavia) and "Città della Salute e della Scienza" Hospital (Turin). HCMV serostatus was assessed at pre-transplant and HCMV DNAemia was weekly monitored after transplant. Peripheral blood mononuclear cells (PBMC) were collected at 0, 30, 60, 90, 180, 270 and 360 days after transplant. Lymphocytes were stimulated with peptide pools (15 aminoacids in length with 11 overlapping) representative of the whole HCMV protein pp65, IE1 and IE2. IFN-γ- producing T cells were quantified by ELISpot assay (Elitech group, Italy) as net spots/million PBMC. Responses were normalized on positive control (PHA) and then on CD4+ and CD8+ T-cell counts.

RISULTATI

Six HCMV seronegative patients (12%) received the organ from seropositive donor (D+/R-), developing HCMV primary infection, while the other 44 (88%) were HCMV seropositive at transplant. Analysis of HCMV protein-specific T-cell responses at pre-transplant showed that pp65 was the most immunogenic antigen, followed by IE1; IE2-specific T-cell response was almost undetectable. According to HCMV DNAemia, KTR were classified in two groups (viral load ≥100.000 copies/mL; n=10 and viral load <100.000 copies/mL; n=34). We observed a significantly lower IE1-specific CD4+ and CD8+ T-cell response among the first group of KTR (median 0.01 IQR 0.0-0.04 CD4 +T-cells/µl and 0.01 IQR 0.0-0.04 CD8+ T-cells/µl) respect to patients with viral load <100.000 copies/mL (median 0.04 IQR 0.01-0.24 CD4+ T-cells/µl and 0.02 IQR 0.01-0.15 CD8+ T-cells/µl), respectively p=0.0221 and p=0.0350. A preliminary longitudinal analysis showed that both CD4+ and CD8+ HCMV-specific T-cell responses were lower among patients with high risk HCMV infection during the first 6 months after transplant.

CONCLUSIONI

Evaluation of HCMV-specific T-cell response at pre-transplant is useful to predict the development of HCMV infections at risk for disease. The role of IE1-specific T-cell response as a prognostic predictor requires confirm in a larger group of patients.