EXPRESSION OF IMMUNOLOGICAL MOLECULES ON THE ANTIGEN PRESENTING CELLS DURING CHRONIC VIRAL INFECTION

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Abstract

Background: Viral infections continue to present a major public health problem. The interplay between immune cell populations contributes significantly to the clearance or persistent infection. Importantly, antigen presenting cells (APCs) have specialized roles in both presenting the antigen and determining the capacity of T-cell response. Defects in APCs could underlie the T-cell dysfunction resulting in incomplete viral control. Dysfunction of APC has been postulated to mediate by a series of costimulatory molecules. A key co-stimulatory molecule is CD28 which binds to B7.1 (CD80), B7.2 (CD86) expressed on the surface of APCs. .

Objectives: The aim of this study is to evaluate the expression of MHC class II and the principal co-stimulatory surface molecules (B7 family molecules) on APCs by flow cytometry.

Methods: This study received ethical approval from Srinakharinwirot University. Peripheral blood in EDTA tube was collected. Nineteen patients were enrolled; nine of them displayed clinical and virological evidence of chronic HBV infection. The rests were HIV-1 treated patients. Surface molecules of HLA-DR and B7 family were assessed by staining whole blood with HLA-DR II-PE/ Cy5, CD80-FITC, CD80-PE and CD274-FITC (BioLegend, San Diego CA) according to standard protocols. The isotype control of same sample was used to define the negatively stained cells.Mann Whitney U test was used to compare the difference between the surface molecules on APCs from two subject groups. Significant difference was considered when the p-value was smaller than 0.05.

Results: The data were expressed as percentage of mean $\pm$SD. A summary of the CD80, CD86 and CD274 expression on APCs from HIV infected patients were 0.8$\pm$0.8, 7.0$\pm$7.1 and 1.1$\pm$1.0, respectively. For HBV infection, the percentages of CD80, CD86 and CD274 expressing APCs were 0.5$\pm$0.6, 5.0$\pm$3.7 and 1.1$\pm$0.7, respectively. In all groups of APCs, p-value were higher than 0.05

Conclusion: The pattern of APCs in response to chronic HBV is similar to that responses to HIV infection. The APCs present higher CD86 than CD80 in both patients with HIV and HBV infection. There were no statistical significant differences for B7 family molecules expression on APCs whencompare between patients with HIV and HBV infection.

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