HLA Class II alleles and the presence of circulating Epstein-Barr virus DNA in Greek patients with nasopharyngeal carcinoma.

Karanikiotis C, Daniilidis M, Karyotis N, Bakogiannis C, Economopoulos T, Murray S, Papamichael D, Samantas E, Nikolaou A, Skoura L, Tselis N, Zamboglou N, Fountzilas G.

Source

424 Army General Hospital, Thessaloniki, Greece.

Abstract

BACKGROUND AND PURPOSE:

Nasopharyngeal carcinoma (NPC) represents a seldom malignancy in most developed countries. Nevertheless, NPC receives an endemic form in concrete racial entities. The aims of this study were to detect the presence of Epstein-Barr virus DNA (EBV-DNA) in peripheral blood of NPC patients, to molecularly define human leukocyte antigens (HLA) DRB1*, DQA1* and DQB1* allele frequencies, and, finally, to determine whether the genetic predisposition of an individual to NPC depends on the liability to EBV infection.

PATIENTS AND METHODS:

A total of 101 patients of Hellenic origin and nationality, with histologically proven NPC, participated in this study. EBV-DNA detection was also applied in 66 patients with EBV-related malignancies (Hodgkin's [HL] and non-Hodgkin's lymphoma [NHL]) and infectious mononucleosis (IM), as well as in 80 healthy EBV-seropositive controls.

RESULTS:

81% of the NPC patients, 77.8% with HL, 72.2% with NHL, and 66.7% with IM were EBV-DNA positive, whereas the EBV genome was detected only in 15% of the healthy controls. These differences were statistically significant in all cases. Analysis of HLA class II antigens showed decreased frequency of the DRB1*07 ($p = 0.003$), DQA1*0103 ($p = 0.002$), and DQA1*0201 ($p = 0.003$) alleles among NPC patients. A significant association between the HLA-DR/DQ alleles and the presence of EBV-DNA in peripheral whole blood was not established.

CONCLUSION:

Circulating EBV-DNA and specific HLA class II alleles may predispose to or protect from NPC. However, the results of this study suggest that the genetic predisposition of an individual to NPC is independent of the liability to EBV infection.