Novel Epstein-Barr virus immunoglobulin G–based approach for the specific detection of nasopharyngeal carcinoma.

ABSTRACT

Purpose This study was designed to find a reliable Epstein-Barr virus (EBV) immunoglobulin (Ig) G–based diagnostic/screening test for nasopharyngeal carcinoma (NPC) able to demarcate between the NPC-related seropositivity of EBV IgG antibodies and that of other head and neck cancer (HNCA) and control groups. The NPC-associated immunosuppression affects EBV IgA much more than IgG, leading to inconsistent detection of NPC using EBV IgA antibodies. Materials and methods One hundred twenty-two HNCA patients, 42 NPC, 66 laryngeal carcinoma, and 14 hypopharyngeal carcinoma and 3 groups of 100 control subjects were enrolled in this study. Enzyme-linked immunosorbent assay (ELISA) was used to find a specific cutoff value for the NPC-related seropositivity of EBV IgG antibodies. Results NPC group showed higher serum level of EBV IgG antibodies than control and other HNCA groups ($P < .05$). However, the traditional cutoff value, mean + 2 SDs of control subjects, failed to demarcate the seropositives of NPC patients from those of healthy population ($P > .05$). The new cutoff value, mean + 2 SDs of the seropositives group of control subjects who had already been grouped by the traditional cutoff value, proved successful. It succeeded to demarcate between the NPC-related EBV IgG seropositivity and that issued from the persistent, latent, or reactivated EBV infection in the population ($P < .05$). The sensitivity/specificity of NPC detection by the new cutoff-based ELISA kit, 76.19% and 86%, was close or higher than that of EBV IgA antibodies. Conclusion EBV IgG-based ELISA could be used for the diagnosis of NPC using a new cutoff threshold that excludes the population baseline of EBV IgG seropositivity.

Keyword: Novel Epstein-Barr virus; Immunoglobulin G-based.