HIA-a24 Gen Allele At Peripheral Blood Samples And Nasopharyngeal Cytobrush In Nasopharyngeal Carcinoma Patients In Makassar

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ABSTRACT

Nasopharyngeal cancer (NPC) is a malignancy that is highly associated with Epstein - Barr virus infection (EBV), highly oncogenic, easily transmitted through saliva and is a multifactorial genetic disease with endemic character. EBV infection will cause an immune response in the patient themselves to recognize and eliminate foreign antigens which is associated with the ability of the antigen in presenting HLA molecules to cytotoxic T cells. Some of the genes under study which are genes that influence the occurrence of NPC are HLA genes. Aims: This study aims to determine the presence of the HLA-A24 allele in peripheral blood samples and nasopharyngeal cytobrush NPC patients in Makassar. Methods: The study design was a cross sectional analytic observational test of Fischer's Exact test on 21 samples of NPC patients who come in Dr. Wahidin Sudirohusodo Hospital. The examination was conducted by BOOM'S method for DNA isolation, and followed by PCR with primers forward and reverse HLA-A24. Result: The results showed the presence of the HLA allele A-24 in peripheral blood samples (37.5%) and nasopharyngeal cytobrush (42.9%) and stated that by performing the same method for taking specimen and examination, HLA-A24 existing in nasopharyngeal cytobrush was also found in peripheral blood. Conclusion: It is concluded that the HLA-A-24 was obtained in patients with NPC in Makassar.

1. Introduction

Nasopharyngeal cancer (NPC) is a malignant epithelial neoplasm that occurs in upper tract autodigestive and a multifactorial genetic disease with endemic character. There are approximately 80,000 new cases each year with the highest incidence of 2500 cases in South China per year. The highest incidence of NPC is in the Mongoloid race with a fairly high frequency in South China, Hong Kong, Vietnam, Thailand, Malaysia, Singapore and Indonesia.¹ ²

NPC is in the 4th rank among all cancers in Indonesia after uterine, breast, and skin cancer, with incidence of 4.7 per 100,000 population of Dr. Wahidin Sudirohusodo Hospital reported in 10-years period (2000-2009) and there were 362 cases (57.29%) of the malignant tumors of head and neck³ ⁴.

Viruses that play a role in increasing the risk of NPC are the Epstein Barr Virus (EBV). After EBV infects B lymphocytes, it could be latent and persistent for life in the host. In some researches, the presence of EBV DNA from patients’ peripheral blood samples is also found. This shows how an EBV avoids the immune system of the human body and is stabilized at lymphocytes B⁶.

B cells infected by EBV will express some latent antigens such as LMP1 and LMP2 (LMP2A and LMP2B)⁸,⁹,10. LMP2A is a latent antigen expressed in B lymphocytes that are infected with EBV. One of the most suspicious genetic factors is the HLA gene⁵ ¹¹ ¹³. These genes are inherited through heterozygous process and are co-dominant. As a result, groups with particular HLA will face the risk of certain diseases. Some diseases are presumably related to HLA, so people with certain diseases will have specific HLA gene.⁶ ¹⁵

According to research on Southeast Asian and Caucasian populations, HLA-A24 and HLA-A2 are commonly found.¹⁷ ¹⁸ Indigenous Indonesian people who have HLA-A24 possess higher possibility to NPC.¹⁹ According to Middleton et al. (2003), allele HLA-A2402 is allele of the HLA-A24 gene that is widely available in Asian populations.¹⁶ Immunogenetic studies in Jakarta in 1997 found HLA-A24 and HLA-B63. Both class I antigen phenotypes are suspected as a causative factor for the indigenous Indonesian


