Detection of Epstein-Barr Virus Derived Latent Membrane Protein-1 Gene in Various Head and Neck Cancers: Is It Specific for Nasopharyngeal Carcinoma ? 鍾兆春

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Abstract

OBJECTIVE: The object of the study was to determine the incidence of the presence of Epstein-Barr virus-derived latent membrane protein-1 (LMP-1) gene in various head and neck cancers by polymerase chain reaction method. STUDY DESIGN: Prospective study. METHODS: During a 5-year period, polymerase chain reaction was used to investigate the presence of LMP-1 gene in various head and neck cancers from different locations and histopathological types, noncancerous nasopharyngeal biopsy samples, and tonsillectomy specimens from patients with chronic hypertrophic tonsillitis. RESULTS: Of 202 patients enrolled in the study, 53 were diagnosed by pathological study with oropharyngeal carcinoma, 45 with nasopharyngeal carcinoma, 26 with oral cavity carcinoma, 26 with laryngohypopharyngeal carcinoma, 31 with nasopharyngeal lymphoid hyperplasia, and 21 with tonsils with lymphoid hyperplasia. After the application of polymerase chain reaction, the LMP-1 gene was not detected in any sample from oral cavity carcinoma, laryngohypopharyngeal carcinoma, or nasopharyngeal lymphoid hyperplasia or from tonsillectomy specimens but was detected in only one case of tonsillar carcinoma. On the contrary, the LMP-1 gene was detected in 43 (95.6%) of 45 samples from patients with nasopharyngeal carcinoma. The statistical analysis shows a significant association ($P < .001$) between the presence of LMP-1 gene and tumor localization in the nasopharynx. CONCLUSIONS: The study shows that the presence of LMP-1 gene detected by polymerase chain reaction in the tumor cell is only significantly associated with tumor located in the nasopharynx, implying that Epstein-Barr virus plays a trifling role in the tumorigenesis of carcinomas arising from other head and neck locations. The polymerase chain reaction method that was used is a potential tool for screening nasopharyngeal carcinoma.