Abstract 1.4

An Association of Epstein-Barr Virus Infection with Oral Squamous Cell Carcinoma

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Background: Oral squamous cell carcinoma (OSCC) is the malignancy of oral cavity originated from squamous cell and accounts for more than 90% of head and neck squamous cell carcinoma (HNSCC). Oral cancer is the sixth most common cancer worldwide with high morbidity and mortality in both Western and Asian countries. Several studies have shown the association of oncogenic viruses with different types of cancer. Epstein Barr virus (EBV) which is also an oncogenic DNA virus is associated with both benign and malignant diseases including Burkitt's lymphoma, nasopharyngeal carcinoma and gastric carcinoma. To explore the association of EBV with OSCC, this study investigated the prevalence of EBV infection in oral exfoliated cells and in cells from lesion of patients from a case-control study.

Methods: Oral exfoliated cells were collected from OSCC cases and controls with normal healthy mucosa, and cells from lesion site were taken from OSCC cases. DNA was extracted and qualified. EBV DNA was detected by polymerase chain reaction using primers specific for EBV DNA polymerase. The EBV positive cases from PCR were furthermore, confirmed by dot blot hybridization using EBV specific probe and nested PCR using EBV specific primers.

Results: EBV DNA in oral exfoliated cells was detected with statistically significant difference between OSCC cases (44%, 44/100) and control (19%, 19/100). Out of total 60 cell samples from lesion site of OSCC cases, EBV DNA was also detected in 53.33% (32/60 samples) that confirmed the prevalence of EBV infection in OSCC cases. Among lesion site of OSCC cases, tongue and buccal regions were frequently found, whereas the prevalence of EBV according to different anatomical sites was found to be highest in gum with the prevalence of 85.7%.

Conclusion: The significant high prevalence of EBV was associated with OSCC, especially at gum region. This result suggests that EBV may act as an important etiological risk factor of OSCC. The mechanism behinds the etiologic role of EBV in OSCC must be further studied.