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IL-6 Expression is Associated with Lymph Nodes Metastasis in Human Oral Cancer

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According to Ministry of Health and Welfare report in 2016, oral cancer is the fifth most common cancer in Taiwan and the incidence is particularly high in male. Oral cancer is usually detected at late stages when the cancer has advanced and results in high mortality and poor prognosis. Therefore, early detection of oral cancer is urgently required for patients. Blood biomarkers are substances that change quantitatively in serum during tumor development. These blood biomarkers are synthesized and expressed at tumor tissue and released into circulation in large quantity by malignant cells. These markers can be used in diagnosis or prognosis of tumor because the change of their concentrations in blood. Recently, salivary proteins have been studied as potential diagnostic biomarkers that can be used for early detection of several cancers. As a diagnostic specimen, saliva offers more advantages because it is noninvasive, nontoxic and easily collected. In this regard, we used enzyme immunoassay to detect 14 biomarkers in plasma and saliva of 29 non-oral cancer patients and 59 oral cancer patients. In our study, IL-10 ($p<0.001$), IL-6 ($p<0.001$), IL-8 ($p<0.001$), and GRO ($p=0.028$) in oral cancer patient blood or saliva were significantly higher than non-oral cancer patients. After IHC staining in oral cancer tissue, we compared the expression of IL-10, IL-6, IL-8 and GRO with the clinical characteristics. The results showed that the expression of IL-6 ($p=0.018$) was significantly higher in the lymph node metastatic group. Besides, the incidence of metastatic lymph nodes detected in oral cancer patients with IL-6-positive tumors was significantly higher ($p=0.015$) than in those with IL-6-negative tumors. In this research, we found that IL-6 expression is associated with lymph nodes metastasis in human oral cancer.