

The Significance of Salivary Cytokines in Oral Leukoplakia

Vucicevic Boras Vanja*

Department of Oral Medicine, School of Dental Medicine, University of Zagreb, Croatia

*Corresponding author: Vucicevic Boras Vanja, Head of the Department of Oral Medicine, School of Dental Medicine, University of Zagreb, Croatia, Tel: +38514802129; E-mail: boras@sfzg.hr

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Editorial

Early detection of oral premalignant lesions which might evolve into oral cancer by screening methods using suitable markers is critical. Saliva as a diagnostic fluid seems to be promising and has a number of advantages when compared to the blood-based testing. Histopathological diagnosis is still gold standard when diagnosing oral premalignant lesions, however, studies upon the role of salivary cytokines show promising results although more studies are needed on a larger sample. Cytokines have an important role in oral diseases and increased levels of interleukin 6 (IL-6) and tumor necrosis factor alpha (TNF-alpha) have been reported in patients with cancer and premalignant lesions such as oral lichen planus and oral submucous fibrosis. Brailo et al. [1] reported significantly increased levels of salivary IL-6 and TNF-alpha in patients with oral leukoplakia when compared to healthy controls. Furthermore, the levels of salivary IL-6 and TNF-alpha did not correlate with the size of leukoplakic lesions nor with its localization. Recently, Brailo et al. [2] reported that salivary IL-1 β and IL-6 were significantly higher in oral cancer patients than in patients with leukoplakia and control group. No significant differences in salivary TNF- α between either of the groups were seen. Sharma et al. [3] reported increased salivary IL-6 levels in patients with leukoplakia and coexisting periodontitis and in periodontitis patients in comparison to the healthy controls. The same authors [3] found that in the leukoplakia group, increased salivary IL-6 level was noticed together with increase in the severity of dysplasia. Sharma et al. [3] concluded that the use of tobacco had a significant role in the elevation of salivary IL-6 which is contrary to the results of Brailo et al. [1].

Black et al. [4] could not find significant differences in cytokine levels (IL-1, IL-2, IL-4, IL-5, IL-10, transforming factor beta (TGF beta), tumor necrosis factor alpha (TNF alpha) and interferon gamma (IFN gamma)) in saliva from HIV-infected subjects without oral lesions and healthy controls. HIV-positive patients with oral leukoplakia displayed significantly increased saliva parotid levels of IL-1 alpha and IFN gamma when compared to HIV positive patients without oral lesions. HIV positive patients with oral candidiasis had significantly higher levels of IFN-gamma than that seen in HIV-infected individuals without oral diseases and significantly higher levels of IL-2, IL-5 and IFN-gamma when compared to the healthy controls. Higher salivary level of IFN gamma was found in HIV positive patients with oral

lesions when compared to the healthy controls. The same authors [4] conclude that salivary parotid cytokines are altered as a result of oral candidiasis and oral leukoplakia as well as concurrent HIV infection. Hohberger et al. [5] have previously demonstrated tumor necrosis factor (TNF)-alpha and its dependent cytokines are upregulated in saliva during oral carcinogenesis. Furthermore, Hohberger et al. [5] concluded that TNF-alpha has the capacity to provide stimulation of events related to early invasion of oral cavity cancer, as judged by its ability to stimulate MMP-9 which was seen on the leukoplakia model.

Interleukin 8 (IL-8) has pro-angiogenic characteristic and therefore may play a vital role in tumour angiogenesis and progression. Punyani et al. [6] found that salivary IL-8 levels were significantly increased in patients with oral squamous cell carcinoma when compared to the patients with oral leukoplakia and healthy controls. However, the difference in salivary IL-8 concentrations between patients with oral leukoplakia and healthy controls was not significant.

Last but not least, it seems that salivary cytokine determination may have a role in the oral precancerous and cancerous lesions however, more studies are needed on the larger sample.

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