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Advances of salivary biomarkers in oral cancer and precancer detection

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Statement of the Problem: Oral cancer is considered the sixth most common cancer across the world, creating a significant global health burden. Despite the progress in preventive and therapeutic strategies, delay in oral cancer diagnosis remains a major cause of high morbidity and mortality. On the other hand, the survival rate increases up to 80% if an early diagnosis is achieved. Salivary biomarkers constitute major progress in diagnosis of oral cancer and are a rapidly developing arena of scientific research; it is also considered a promising prognostic and diagnostic tool in oral malignant and oral premalignant conditions.

The purpose of this study is to report the most recent data on the diagnostic and prognostic value of salivary biomarkers in oral cancer and precancer.

Methodology: A literature search was performed using the Cochrane library and PubMed databases from 1995 till present.

Results: In the recent biological era "omics" method is a new biomarker detection tool that emphasis on exploring many molecules presents in saliva. Presently, five main salivary diagnostic constituents are recognized; genomics, transcriptomics, proteomics, metabolomics, and microbiomics. Recent systematic reviews with high value of evidence have shown that salivary biomarkers analysis can be an excellent primary screening tool for the high-risk cases of oral cancer, and that combining these biomarkers with conventional tools could provide more potent diagnostic values for early detection of oral precancer and cancer.

Conclusion & Significance: Combination of multiple biomarker candidates in prompt detection of oral precancer and cancer is preferred to improve accuracy, sensitivity, and reliability. This can bring salivaomics to clinical point-of-care applications. Clinical relevance: The use of salivary biomarkers is beneficial in screening of high-risk cases and is available for practitioners to apply into their clinical practice.

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