OPEN ACCESS Freely available online

ISSN: 2161-1122
Dentistry

Commentary

Oral Leukoplakia and Oral Squamous Cell Carcinoma Salivary and Serum Metabolomics

Toledano Haystead*

Department of Dentistry, University of Toronto, Toronto, Canada

ABOUT THE STUDY

Oral leukoplakia and Oral Squamous Cell Carcinoma (OSCC) are two of the most common oral diseases, with a high risk of malignant transformation. Metabolomics, the study of small molecules produced by cellular metabolism, has emerged as a powerful tool for disease diagnosis and prognosis.

Salivary and serum metabolomics have been used to investigate the metabolic changes associated with oral leukoplakia and OSCC. Saliva is an easily accessible biofluid and contains a diverse range of metabolites, while serum reflects the systemic changes in metabolism associated with cancer.

Several studies have reported alterations in the salivary and serum metabolome of patients with oral leukoplakia and OSCC. These include changes in amino acid, carbohydrate, lipid, and nucleotide metabolism.

The most prevalent type of oral cancer and the sixth most common malignancy worldwide is oral squamous cell carcinoma. With an estimated incidence of roughly 275,000 cases, two-thirds of these cases occurring in poorer nations, the burden is growing globally. According to information gleaned from India's various cancer registries, the age-adjusted incidence rates of OSCC per 100,000 people were between 2.2 and 8.9 for women and 3.3-10.7 for men. While OSCC may develop from nothing, the majority are preceded by the presence of clinically obvious abnormalities in the oral mucosa that have the potential to progress to malignancy. Together, these lesions are regarded as possibly cancerous illnesses. The most frequent potentially cancerous condition in the oral cavity is leukoplakia, with a 0.1% to 17.5% malignancy transformation rate.

It is generally known that the tumour cell experiences molecular changes in various cellular molecules, including DNA, RNA, and proteins, during the course of its development. These changes may be related to the biological characteristics of the cancer cell. Based on a number of studies, it may be assumed that these changes are crucial for both the development of tumours and the general survival of malignant cells. These markers can also help with early diagnosis and prognosis prediction. The "omics" group has revolutionised cancer diagnostics as a result of the rapid developments in the discovery of these molecular targets in cancer cells. Proteomics, genomics, epigenomics, transcriptomics, microbiomics, and other molecular measures are used in omics-based tests, which are assays.

The study of the metabolome, which describes the collection of tiny molecules found in cells, tissues, organs, and biological fluids, is referred to as metabolomics. These chemicals' concentrations and fluxes are the result of complex interactions between the environment, protein expression, and gene expression. The metabolic activities that take place in cells, tissues, or organs produce metabolites. Around 38,000 detectable metabolites, including volatile, polar, and more polar ones, are present in the human body.

For example, one study found that levels of several amino acids, including phenylalanine, tyrosine and tryptophan, were decreased in the saliva of OSCC patients compared to controls. Another study found alterations in lipid metabolism in the serum of patients with OSCC, with increased levels of sphingomyelin and decreased levels of phosphatidylcholine.

Overall, salivary and serum metabolomics have shown promise as non-invasive diagnostic tools for oral leukoplakia and OSCC. However, more studies are needed to validate these findings and to develop metabolomic biomarkers with clinical utility.

Correspondence to: Toledano Haystead, Department of Dentistry, University of Toronto, Toronto, Canada, E-mail: tolendo.h@gmail.com

Received: 01-Mar-2023, Manuscript No. DCR-23-20526; **Editor assigned:** 06-Mar-2023, Pre QC No. DCR-23-20526 (PQ); **Reviewed:** 20-Mar-2023, QC No. DCR-23-20526; **Revised:** 27-Mar-2023, Manuscript No. DCR-23-20526 (R); **Published:** 04-Apr-2023, DOI: 10.35248/2161-1122.23.13.629

Citation: Haystead T (2023) Oral Leukoplakia and Oral Squamous Cell Carcinoma Salivary and Serum Metabolomics. J Dentistry. 13:629.