

## A Short Commentary on Potential Oral Complications of Diabetes Mellitus

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### Abstract

Diabetes mellitus (DM) is associated with several microvascular and macrovascular complications, such as retinopathy, nephropathy, neuropathy, and cardiovascular diseases. The pathogenesis of these complications is complex, and involves metabolic and hemodynamic disturbances, including hyperglycemia, insulin resistance, dyslipidemia, hypertension, and immune dysfunction. These disturbances initiate several damaging processes, such as increased reactive oxygen species (ROS) production, inflammation, and ischemia.

**Keywords:** Diabetes; Type 2 diabetes, wellness; century.

### Introduction

The pathogenesis of these complications is complex, and involves metabolic and hemodynamic disturbances, including hyperglycemia, insulin resistance, dyslipidemia, hypertension, and immune dysfunction. These disturbances initiate several damaging processes, such as increased reactive oxygen species (ROS) production, inflammation, and ischemia. These processes mainly exert their damaging effect on endothelial and nerve cells, hence the susceptibility of densely vascularized and innervated sites, such as the eyes, kidneys, and nerves. Since the oral cavity is also highly vascularized and innervated, oral complications can be expected as well. The relationship between DM and oral diseases has received considerable attention in the past few decades. However, most studies only focus on periodontitis, and still approach DM from the limited perspective of elevated blood glucose levels only. In this review, we will assess other potential oral complications as well, including: dental caries, dry mouth, oral mucosal lesions, oral cancer, taste disturbances, temporomandibular disorders, burning mouth syndrome, apical periodontitis, and peri-implant diseases. Each oral complication will be briefly introduced, followed by an assessment of the literature studying epidemiological associations with DM. We will also elaborate on pathogenic mechanisms that might explain associations between DM and oral complications. To do so,

we aim to expand our perspective of DM by not only considering elevated blood glucose levels, but also including literature about the other important pathogenic mechanisms, such as insulin resistance, dyslipidemia, hypertension, and immune dysfunction. Complications of DM can be divided into acute and chronic complications (1). Associations between acute effects of DM and oral complications have not yet been reported in the literature. Since oral complications are most likely the result of long-term effects of diabetes, the focus of this review will be on chronic complications. Diabetes mellitus is the eighth most frequent disease leading cause of death throughout the world and now ranks the fifth, following communicable diseases, cardiovascular disease, cancer, and injuries. Prevalence of diabetes mellitus is increasing worldwide. The current study showed an increasing interest of researchers in the psychiatric aspects of diabetes. This increasing interest is believed to promote the health of diabetic patients through initial screening of depression and through psychological and pharmacological treatment of the diseases. As a chronic disease with increasing global health burden, researchers need to get involved in all aspects that can alleviate the future complications of the disease to minimize health and economic burden of the disease. Insufficient data might cause the conflicting results; therefore GWAS on defined population with large sample size is suggested as a more comprehensive approach answering many more questions.

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