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RESEARCH ARTICLE

Genetic Identification of Yeast Isolated From Diabetic Patients In Basra Governorate, Iraq

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ABSTRACT

The relationship between diabetes mellitus and oral diseases has received considerable attention in the past few decades. The impaired immune response is the major reason that cause diabetic patients more prone to oral opportunistic infections. Lower respiratory tract infections, urinary tract infections, bacterial and mycotic skin and mucous membrane infections are all found to be increased in diabetic patients. In the current study, twenty-four yeasts were isolated from oral cavity of diabetic patients. All isolates were identified with morphological tests that include culturing onto CHROMagar™ Candida, germ tube formation, chlamydospore formation and culturing on tobacco agar medium. Molecular identification with amplification of ITS1-5.8S-ITS2 rDNA region by means universal primers ITS1 and ITS4 revealed 25 yeasts belong to nine different yeast species, including C. albicans (44%, n=11), C. dubliniensis (28%, n=7), C. tropicalis (8%, n=2), C. aaseri (4%, n=1), Pichia kudriavzevii (8%, n=2) , Pichia fermentans (4%, n=1), Naganishia uzbekistanensis (3.846%, n=1), Kluyveromyces marxianus (4%, n=1), Cutaneotrichosporon terricola (4%, n=1), Saccharomyces cerevisiae (4%, n=1). The current study indicated that C. albicans is the most frequent species in the oral cavity of diabetic patients as the causative agent of candidiasis followed by C. dubliniensis.

INTRODUCTION

Type II diabetes mellitus (DM) is a complex, heritable and heterogeneous condition that occurs in a range of phenotypes (Philipson ,2020) .It is a group of metabolic diseases characterized by hyperglycemia resulting from defects in insulin secretion, insulin action, or both which is the most common cause of death among adults with diabetes mellitus [2]. (Abudawood, 2019). The pathogenesis 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 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 (Verhulst *et al*., 2019).

Immune dysfunction plays a central role in the pathogenesis of diabetes complications. DM can adversely affect several aspects of the immune system. For example, innate (polymorphonuclear neutrophils [PMN], macrophages, and monocytes) and adaptive (T lymphocyte) immune responses are often compromised. More specifically, PMNs exhibit impaired