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"Effect of Cigarette Smoke on Candida Albicans Growth and Its Interaction"

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Abstract – The aim of the present study was Smoking and Tobacco a number of studies have found that smoking either alone or in combination with other factors may be an important predisposing factor for oral candidiasis, although this relationship or its pathogenic influence on oral Candida is far from being resolved. While some studies have suggested that smoking does not affect Candida carriage significantly, other have reported that smoking significantly increases its' prevalence. Cigarette smoking seems to have a contributing effect especially on the incidence of pseudomembranous candidiasis in immunocompromised individuals.

Keywords: Cigarette, Smoking, Candida, Albicans, Growth, Interaction, etc.

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INTRODUCTION

The human mouth is an appropriate environment for numerous microbes (Li, Redding, 2007.). Microbial diversity in the human oral cavity was discovered long ago, thanks to culture methods and molecular-based approaches. The oral microbiome is heterogeneous showing different physicochemical properties (Berman, Sudbery. 2002). The presence of shedding and solid surfaces in the oral cavity provides an opportunity for numerous microbial species to adhere and to grow, compared to other microbial habitats in the human body (Zhang, *et al.,* 1994). In contrast, the presence of fungi is associated with some diseases and infections, although this does not eliminate the role of fungi and fungi-bacteria interactions in such infections (Tsang, Samaranayake, 1999). One of the most studied and most common fungi in the oral cavity is Candida albicans.

REVIEW OF LITERATURE:

Multiple other factors such as oxygen content, saliva, gingival crevicular fluid, and diet play major roles in the microbial composition of these oral ecological niches (Tsang, Samaranayake, 1999). Humans are able to modify the microbial load through daily hygiene habits such as cleaning the teeth and tongue (Ellepola, Samaranayake. 2001). The major constituents of the oral microbiome are bacteria and fungi. Many oral microbes, such as Firmicutes (genus Streptococcus, family Veillonellaceae, genus Granulicatella), Proteobacteria (genus Neisseria, Haemophilus), Actinobacteria (genus Corynebacterium, Rothia, Actinomyces), Bacteriodetes (genus Prevotella, Capnocytophaga, Porphyromonas), and Fusobacteria (genus Fusobacterium) are normal microbial complexes residing in the oral cavity in various intraoral niches (dental surfaces, cheeks, hard palate, tongue, and saliva) (Zhang, *et al.,* 1994).

Candida albicans infection: Candida albicans infection begins with the yeast's adhesion, growth, and invasion of the host immune system. Once it overcomes this immune system, Candida albicans adopts hyphal forms to facilitate the invasion (Ellepola, Samaranayake. 2001). In this way, Candida albicans penetrates the host cells and reaches the blood to ultimately disseminate throughout the patient's body. There are several causes leading to Candida albicans infections. These causes include antibiotic treatment (which disrupts the normal flora population), immunosuppression, etc.

Candida albicans and oral cavity: In healthy conditions, the presence of C. albicans in the oral cavity is part of normal flora alongside many bacteria to maintain a microbial balance. However, in certain conditions, this balance can be deregulated, resulting in infection in the oral cavity. Many oral infections are caused by C. albicans. For example, one oral disorder caused by C. albicans is denture-related stomatitis which is an adhesion of C. albicans to dentures and the formation of biofilms leading to chronic inflammation. Denture-related stomatitis is affected by patient age, smoking, oral hygiene, and

the presence of yeast. It is identified as an oral disorder known as oral candidiasis.

CONCLUSION:

Smoking and Tobacco chewing is associated with a variety of effects on the saliva, oral commensal bacteria and fungi, mainly Candida, which causes Oral Candidiasis, the most common opportunistic fungal infection in man. This evaluation is an attempt to address the effect of cigarette smoking and tobacco chewing on the colonisation of oral candida. Many factors can predispose to oral Candida infection. Whether cigarette smoking/tobacco chewing is included among one, has been considered for many years. The major component among both is Nicotine, an addictive stimulant drug.

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