Scholars Journal of Dental Sciences (SJDS) **ISSN 2394-496X (Online)**
Sch. J. Dent. Sci., 2015; 2(5):336-339 **ISSN 2394-4951 (Print)**

(An International Publisher for Academic and Scientific Resources)
www.saspublishers.com DOI: 10.36347/sjds.2015.v02i05.006

Research Article

Prevalence of Oral Cavity candidiasis in patients referring to Dental clinic in Zahedan-Iran

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Abstract: Oral cavity infection due to its specific characteristics such as the position of the teeth and entry the different material and also its various activity, exposed to different contaminants. Candida is the common fungal pathogen of oral cavity. The aim of this study was to determine the relative levels of oral Candida infection inpatients referred to department of dental diagnostic center. In this descriptive cross-sectional study, 290patients were choosing randomly while doing interview, as well the examination and sampling was done. The samples were prepared from the dorsal surface of the tongue, and were cultured in corn meal agar medium, and in the positive cases, germ tube test was performed to remove *Candida albicans* from other species. Data were analyzed using chi-square test SPSS software. In70patients (24.1%) Candida was identified. 28cases (40%) were the carriers Candida albicans species, 39infectedpatients (55.7%) were females and31 cases (44.3%) were male. Chi-square tests indicate that there is a direct relationship between age and contamination (P= 0.0002). Also with increasing of plaque index, the accumulation and proliferation of Candida were increased (P=0.035). The most common symptoms reported in infected patients were atrophy of the tongue, burning mouth and median romboid gelosit. Culture positive cases had significant relationship with those how have disease (0.003). Since the clinical symptoms of glossitis median Romboid was remarkable infected patients, further studies to determine the most common clinical sign in this region is necessary for oral Candidiasis. Planning and determine appropriate instructional strategies for promoting oral hygiene and plaque index reduction is necessary.
Keywords: oral cavity, Candida albicans, plaque index, median Romboid gelosit, Zahedan, Iran.

INTRODUCTION

Background: oral cavity due to its specific characteristics such as the position of the teeth and entry the different material and also its various activities, exposed to different contaminants. Oral and dental fungal infections are discussed as a significant portion of infections in dentistry [1]. Candidiasisis a primary or secondary infections that is created by some species of fungi, yeasts, and particularly *Candida albicans* [2]. Primary infection may occur in the oral cavity, throat and other organs and then spread to other parts. Osophargnes cavity infection are common complication in most cases (75%) that are caused by Candida albicans. After wards tropicalis and Cruzi species are the most common causes [3].

A new species named Candida dubliniensis has been isolated from immuno compromised patients, and non-AIDS patients has also been reported recently [4,5].Although candidias is been partially self-limiting, however, it can be seen asa harbinger of a major and potential diseases. It seems that apparently harmless infection of the oral cavity has the ability to threaten progress, and spread to other parts, and make a dangerous situation for patient's life [1,2]. A common infection in infants and children is considered uncommon lesion in adults. Unless the host defense mechanisms may adapted with local agents, antibiotics or systemic disorders [6]. In studies, the Candida have isolated from, 70% of patients with Thrush, 75% of consumers oral antibiotics, 77% of cases with inflammation of the lips and corners of the mouth (Cheilitis), 69% of ulcers due to prosthesis, 84% of chronic candidiasis hyperplastic and 100% chronic mucocutaneous Candidiasis [6,7]. Another study shows that, in 30% of persons Candida is a normal flora in

mouth. Age and sex distribution and clinical course of infection was significantly associated with the underlying causes and underlying disease [8]. Pathogenicity fungal capability varies depending on host situation, so presence of disease factor is not the cause of disease. In case of illness, mycelial growth made by the hyphae elongated, is the dominant form of tissue invasion. In blood Publication mood, Blastoespors are predominant form [1,2]. Using the phenomenon of phenotypic variation (Switch phenotype) in certain situations, such as drug resistance, Candida is capable to colonization in mouth and causing involvement of mucosal cells with blasto spores, and finally manoproteins involvement (Manoprotein)or major components of fungal cell wall with living tissue [9]. Overgrowth of taste buds fungal form due to fungus-induced is called geographic tongue or Median Rhomboid Glossitis (10). Evidence indicates the pepsin secretion similar to protease by pathogens Candida, in the acute candidiasis this phenomenon is caused the loss of epidermal keratins. Upon entering fungal agents into layers of living epithelium cell and immune system involvement, Produce scytokines which act as anti-tissue and causing intraepithelial abscesses are [1,2]. There are several factors in the etiology of oral candidiasis, including : Age, use of drugs such as corticosteroids in form of and inhaled local conditions and inhaled, physiologic changes such as pregnancy, stimuli and local factors such as smoking and prosthodontics, radiation therapy, immunodeficiency, and other internal disorders. The results of a comparative study between normal persons and those using denture showed that, At78.3% of dentureusersand36.8% of healthy individuals Candida colonies existed [11]. Radiation therapy in cancer patients causes dry mouth and may ultimately increase the colony of fungi [12]. Other studies show that the most important risk factors for oral candidiasis, are systemic factors and associated mucosal diseases and then antibiotics uses. Endocrine disorders such as diabetes and altered thyroid function, various malignancies, such as leukemia, lymphoma, diseases such as asthema and congenital or acquired immune deficiencies are placed in these factors. Nutritional disorders, dry mouth, poor oral health, aging, are the other factors in this regard. Also pups during lactation may be effective in cause disease and transition of agents between mother and child [1,2,11-14]. Since the health and nutrition behaviors of in habitants of Sistan and Baluchistan, in accordance with the economic, cultural and racial fields, Possibly provides a different patterns of oral diseases, and with regard to the few studies about oral fungal infections in Iran, need to review these infections and related factors in the this part of the country has been felt. The purpose of this study is to determine the relative prevalence of infections of the oral cavity with the origin of Candida, and to determine the proportion of patients in relation to factors such as age, sex and level of oral hygiene in patients has been referred to the Faculty of Dentistry of Zahedan.

Experimental

In this descriptive cross-sectional study that was conducted in 1387in the Faculty of Dentistry, Zahedan, after determination of sample volume with using formula samples in descriptive studies, a total of 290 patients were interviewed, and completing questionnaire, and also sampling and testing. Samples were taken from the dorsal surface of the tongue with sterile swab, was transferred to corn meal agar medium linearly and adjacent of the flame. Plates were immediately transferred to the laboratory, then stored in incubator at 37 ° C for 48-72 hours. After this period, in infected samples. Creamy and milky colonies appeared. For identification of Candida species, from each colony of medium, was prepared a direct smear and were stained by lacto phenol cotton blue and then viewed by microscope. All Candida yeasts with twice germ tube than the size of fungus were considered as Candida albicans, and the rest was considered from other species. To confirm the above mentioned methods, some samples underwent biochemical tests randomly such as: sugar fermentation and assimilation, urea and nitrate do pas. This way from each plate, 5- 10 slides was observed after staining. The criterion for differentiation of Candida from other fungi, was appearance of single and oval cells with or without thin wall germination and also with real or false mycelium. In positive samples for detection of Candida species, Sera test, germ tube (germ tube) was done. For this purpose a small amount of pure samples transferred to human serum at 37 ° C by announces. After3-2hours, a drop of infected serum samples with Candida was searched microscopically. Despite the false and real mycelium and chlamydo spores and blastospores were the reason for Candida albicans. In formations obtained, based on sample number transferred to similar questionnaire and then this complex analysis with chy 2 test and SPSS software.

RESULTS AND DISCUSSION

In this study, 290 patients were examined that 153patients (52.7%) were female and137 (47.3%) were male. Minimum age was 10yearsand the oldestwas90years old. There were7patientswith clinical symptoms.40 patients complained of dry mouth. 10 patients were diabetic, and6 patients affected with asthma. None of the women were pregnant, and none of the subjects had a history of head and neck radiotherapy. None of the subjects did not use corticosteroids or cytotoxic drugs. Only 15 subjects were cigarette smokers. 279 subjects did not use any denture or dental instrument. The results of primary culturein70 cases (24.1%) were positive. Of these, 28 patients (40%), were infected with Candida albicans, and 42 (60%) were infected with other species. 39 persons (25.5%) offemalesand31 cases (22.6%) of males were infected and there is no significant

relationship between age and infection. (P=0.57).The age distribution of infected individuals is shown in Table 1.X2testsindicate that in age group above 50years, infection has increased significantly (P=0.0002).

Table-1: distribution of oral Candida as normal flora in the sample based on age

Age / Culture result	10-24 (%) frequency	25-49 (%) frequency	50X> (%) frequency
Positive	20(15.2)	40 (28.6)	10 (55.6)
Negative	112(84.8)	100 (71.4)	8 (44.4)
Total	132 (100)	140 (100)	18 (100)

Results of this study shows that with increase of plaque that is related to oral hygiene, the accumulation and proliferation of Candida has increased in mouth. As we seen in Table2, this relationship is statistically significant. (P=0.035).

Table-2: Distribution of Candida based on plaque index

Plaque index / Culture result	0-50 frequency	51-100 Frequency
Positive	33 (19.6)	37(30.3)
Negative	135 (80.4)	85 (69.7)
Total	168 (100)	122 (100)

Among the subjects, Clinical signs include diffuse atrophy of the tongue, burning mouth and the median Rhomboid Glositis. A scan be seen in Table3culture-positivecaseswithclinical signs had significant association (P=0.003).

Table-3: Distribution of lesions induced by Candida and based on culture results.

Culture results / Clinical signs	Total (%) frequency	Negative (%)frequency	Positive (%)frequency
Median Rhomboid Glositis	4(1.4)	0 (0)	4(1.4)
Burning mouth	2 (0.7)	2 (0.7)	0 (0)
diffuse atrophy of the tongue	1 (0.3)	1 (0.3)	0 (0)
Lack of sign	283 (97.6)	217 (74.8)	66(22.8)
Total	290(100)	220(75.9)	70(24.1)

The frequency of Candida in this research was 24.1 that were similar to findings of other research. Prevalence ofCandida69.2% have been reported in different societies (2,7,8). In this study, 20%of Candida albicans obtained this result was in accordance with previous studies. 70.6% of the subjects in similar studies have Candida and with an average of 37% od carriers had Candida albicans. [7,8]. The findings of this study, the frequency of candida are higher In adults, this is consistent with the results of other studies. [7,6]. Researches that has been done in this field, the frequency of Candida in neonatal was higher than all age groups, but in adults compared to adolescents the frequency of candida was higher [10,11,13,14]. According to the results of this study found no relationship between gender and the presence of Candida. This finding is consistent with results from previous studies in this field [13]. In this research, an oral hygiene was measured by plaque index, and it was determined that oral health has a direct relation with the frequency of Candida. So that the30.3% of patients who have had more than 50%plaque index, were Candida carriers. This finding is consistent with similar reports [7,10,13, 6]. Investigation of possible etiology of oral

lesions that induced by Candida about 3 cases out of 4 who affected by Candidiasis, This indicates that the precipitating factor in these patients is poor oral hygiene, antibiotics usage, dry mouth, and smoking. These results are similar to previously published results. For example, the results of a study on patients who had undergone radiation therapy and also suffered from dry mouth, indicating a progressive increase of Candida colonies, in these types of patients [12]. In another study that conducted on risk factors in the incidence of candidiasis, the results indicate that the use of antibiotics in incidence of oral candidiasis is the second most important factor [10]. Smoking is one of the predisposing factors, in a study on people who used denture; our results suggest that, Smoking increases the incidence of candidiasis and also Candida colony counts [7]. The study was done on poor oral health, showed that it's an important factor in incidence of Candida [6, 7]. The etiologic agent was not identified correctly in only one of those. In this study, 3 patients suffering from candidiasis with other species. Which findingis not unexpected and is consistent with findings from previous studies [13]. Candida colony countsranged between1 to 800colonies. It is noticeable that there was a reasonable relationship between the number of colonies and oral health. This finding is contrary to other reports, and the study of its causes, needs to be independent study. According to the findings of this study, further tests and studies needs to separate different species of Candida, exact determination of oral flora in people of that area and also identification of pathogenic species is essential. Since in present study, patients with clinical signs of median Rhomboid Glositis were referred, Recommended that further studies be conducted to evaluate the most common clinical sign of the candidiasis. Based on the results obtained, parameters such as plaque index was correlated variables of Candida. And considering the majority of the subjects did not have good oral hygiene, specific measures to raise awareness of oral health, and contribute to an effective role in dental public education is important.

Acknowledgements

Here by from efforts Saeed Mohammadi, Research and Cooperation Deputy, due to their lot of work to do in this regard would be thanked.

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