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Original Article

Assessment of Prevalence of Oral Candidiasis among Birgunj, Nepalese Population: A Cross-Sectional Study

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***ABSTRACT*:**
Background: Oral candidiasis is one of the common fungal infection, affecting the oral mucosa. Prevalence of oral candidiasis in general population varies considerably. Hence; we conducted the present study to assess the prevalence of oral candidiasis in Birgunj population. **Materials & methods:** The present study included assessment of prevalence of oral candidiasis among subjects of known population. A total of 200 subjects were included in the present study. Percentage prevalence was oral candidiasis was calculated. **Results:** A total of 200 patients were included in the present study. Prevalence rate of oral candidiasis was seen in 4% of the patients.**Conclusion:**Oral candidiasis is present more commonly in patients with history of chronic antibiotic usage.
Key words: Oral Candidiasis, Prevalence.

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INTRODUCTION

Oral candidiasis is one of the common fungal infection, affecting the oral mucosa. These lesions are caused by the yeast Candida albicans. Candida albicans are one of the components of normal oral microflora and around 30% to 50% people carry this organism. Rate of carriage increases with age of the patient.[1- 3] Candida albicans are recovered from 60% of dentate patient's mouth over the age of 60 years.[4]Prevalence of oral candidiasis in general population varies considerably. Hence; we conducted the present study to assess the prevalence of oral candidiasis in Birgunj population.

MATERIALS & METHODS

The present study was conducted in the department of oral pathology of the dental institute and included assessment of prevalence of oral candidiasis among subjects of known population. Ethical approval was taken from institutional ethical committee and written consent was obtained after explaining in detail the entire research protocol. A total of 200 subjects were included in the present study. We included all the patients who reported to the institute for seeking dental treatment. Mouth mirror and probe were used for evaluating the oral cavity of the patients. Tongue blade was used for scrapping the oral cavity of the patients for testing the presence of oral candidiasis. All the results were recorded on the excel sheet. Percentage prevalence was calculated. All the results were analyzed by SPSS software. Univariate regression curve was used for assessment of level of significance.

RESULTS

A total of 200 patients were included in the present study. Out of which 100 were males and 100 were females. Mean age of the patients was 43.5 years. History of chronic antibiotic usage was seen in 2 patients. Prevalence rate of oral candidiasis was seen in 4% of the patients.

Table 1: Distribution of patients

Parameter	Value
Total patients	200
Mean age (years)	43.5
Males	100
Females	100
Prevalence (Patients)	8

DISCUSSION

Oral candidiasis is a common opportunistic infection of the oral cavity caused by an overgrowth of Candida species, the commonest being Candida albicans. The incidence varies depending on age and certain predisposing factors. There are three broad groupings consisting of acute candidiasis, chronic candidiasis, and angular cheilitis. Risk factors include impaired salivary gland function, drugs, dentures, high carbohydrate diet, and extremes of life, smoking, diabetes mellitus, Cushing's syndrome, malignancies, and immunosuppressive conditions.[5- 7]

In the present study, we observed that prevalence rate of oral candidiasis was 4%. Martinez RFF et al obtained the prevalence of Candida carriers among patients with type 2 diabetes mellitus to identify the species of the yeast. Study design: It is an open, observational, descriptive, cross-sectional, and prospective study. They included voluntary patients from the National Diabetes Marathon and performed a blood glucose measurement, sialometry test, Gram-stained exfoliative cytology, and culture on Sabouraud dextrose agar and CHROMagar Candida TM. Results were analyzed using descriptive statistics. They examined 141 patients (mean age 57 years): 103 women (73%) and 38 men (26.9%). Exfoliative cytology was positive in 32 cases (23 with oral lesions); 78 had oral lesions but no Candida (93.9%). Candida was isolated in 58 patients (41.1%), 21 (45.6 %) had blood glucose greater than 126 mg/dl, and 37 (38.9%) had less than 126 mg/dl. The most frequent species was C. albicans (82.7%). Forty-two Candida carriers had salivary flow greater than 20 mm (72.4%), and 16 (27.5%) had hyposalivation. Candida was isolated in 25 of 79 patients with dental prosthesis (31.6%), 9 of 15 were smokers (60%), and 22 of 71 had symptoms (30.9%). Prevalence of oral Candida carriers in patients with type 2 diabetes mellitus in Mexico was similar to that found in other countries; exfoliative cytology was effective in finding Candida; salivary flow rate, use of prosthesis, and presence of oral lesions and symptoms were similar in oral Candida carriers and negative patients.[8]de la Rosa-García E et al determined the prevalence of different Candida species colonising or infecting the oral mucosa (OM) of diabetic (DM) and non-diabetic (non-DM) chronic kidney disease patients, comparing both groups and exploring potential risk factors. 56 DM and 80 non-DM patients on chronic dialysis were examined. OM swabs were cultured on Sabouraud dextrose agar plates. Candida species were identified with API® galleries. OC was confirmed by exfoliative cytology. Statistical associations were analysed using $\chi 2$, Fisher's exact test (ET), and multiple logistic regression. Candida prevalence was 43.4%: 53.6% DM and 36.3% non-DM, (p=.045). The species identified were C. albicans 74.6%, C. glabrata 22.0%, C. tropicalis 15.2%, C. parapsilosis 3.4 %, C. kefyr 3.4% and C. famata 1.7% without difference between groups. DM patients had a higher xerostomia prevalence (p=.002) and lower salivary flow (p=.008) and lower serum albumin (p=.018). 16.9% of patients had OC, 23.2% DM compared with 12.5% non-DM, (p=.101). The following were associated with the presence of Candida in the OM: the use of dental prostheses (odds ratio [OR] 25.6, 95% confidence interval [CI] 2.5 to 253, P=.001), xerostomia (OR 9.6, 95% CI 2.4 to 38.1, P=.001) and low serum albumin values (OR 0.41, 95% CI 0.22 to 0.98, P=.044). The presence of Candida sp. in the OM was associated with dental prostheses, xerostomia and low serum albumin.[9]

Willis AM et al evaluated candidal load and carriage of candidal species in 414 insulin-treated diabetes mellitus patients with and without clinical signs of infection. Host factors that could influence candidal load in diabetic patients with oral candidosis were also investigated. Candidal species were recovered from 414 insulin-treated diabetes mellitus patients attending two hospital diabetic clinics, using an oral rinse technique. Seventy-seven per cent of diabetic patients carried Candida species in their oral cavity, with C. albicans being the species most frequently isolated. C. dubliniensis was found for the first time in this patient group. Forty per cent of patients colonized with candidal species had no clinical signs of oral candidosis. Where oral candidosis was present, erythematous candidosis was the most common clinical presentation. Candidal load was not associated with age, sex or glycaemic control. However, it was significantly increased in those patients who were tobacco smokers, and non-significantly increased in those patients who wore dentures, or who had clinical signs of oral candidosis. The epidemiology of oral candidal carriage and infections in diabetic patients is complex and includes species which have not been previously reported in this group of patients. The development of oral candidosis in insulin-treated diabetes mellitus patients is not the result of a single entity, but rather, a combination of risk factors.[10]

CONCLUSION

From the above results, the authors concluded that oral candidiasis is present more commonly in patients with history of chronic antibiotic usage.

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