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A Survey of Denture Hygiene in Older Patients

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Abstract

Objective

To assess the denture hygiene in elderly patients.

Materials And Methods

In this study, a questionnaire was applied to patients from the South Indian population in order to evaluate the hygiene methods and habits concerning the use of complete dentures, the age of dentures and its irritation and whether patients have been instructed on how to clean their dentures. The study sample consisted of totally 50 subjects in the age group 60-80 years respectively.

Results

Most of the individuals used only water to clean their dentures twice per day. Participants from the age group 60-80 years and who had been wearing dentures since 10 to 15 years maintained better frequency of cleaning. The majority of these patients used water and toothbrush for denture cleansing. After seeing the condition, nearly more than half of the dentures were rated as poor.

Conclusion

Improper denture hygiene leads to various lesions of the oral environment associated with wearing of dentures. This is mainly due to irregular cleansing habits and also less usage of cleansing solutions. The dentist should give appropriate instructions regarding the maintenance of the denture cleanliness.

Keywords-Complete denture, Cleansing solutions, Toothbrush, Hygiene, Elderly patients.

INTRODUCTION

Complete dentures are used for replacing the entire set of lost tooth in the dental arch so as to replace the esthetic and functional conditions to the patients and to maintain an odor-free appliance.[1] The fitting of the denture, its occlusal relations, age and hygiene of the denture are the most important etiological factors which in turn contribute to the occurrence of oral cavity lesions as a result of denture use.[2] Placement of denture in the oral cavity produces profound changes of the oral environment that may have an adverse affect on the integrity of the oral tissues.[3-5]

The primary objective of maintaining the complete denture is to prevent the occurrence of lesions like commisural chelitis, burning mouth syndrome, mouth ulcer, denture irritation hyperplasia, gagging leading to caries and periodontal disease in the oral cavity.[6-9] In elderly patients, care of the mucosal tissues and the dentures of the edentulous mouth are very important for overall health.[10-11] The main aim of cleaning the denture is to remove the plaque adhering to the denture which in turn will eliminate the cause of denture stomatitis and reduce the presence of micro-organisms on the denture which have been known to act as a reservoir of micro-organisms involved in systemic diseases like aspiration pneumonia, endocarditis and diabetes. [12-14]

The surface of the oral cavity, natural or synthetic, becomes coated with a thick precipitate of salivary glycoprotein and immunoglobulin commonly termed as a pellicle.[15-19] This pellicle in turn provides a substrate to which debris such as mucin, food particles, desquamated epithelial cells and microoraganisms like bacteria and fungi adhere.[20-22] Certain adherent microorgansisms convert materials like sucrose and glucose in the oral cavity into a protective plaque after which they can thrive and undergo further proliferation.[23-25] Hence, it is very much essential to remove the oral debris mechanically, chemically or through a combination of these.[26-29]

MATERIALS AND METHODS

In this study, a questionnaire was developed which mainly focuses on evaluating the Indian population regarding the complete denture hygiene and their knowledge and ability to clean the denture at appropriate intervals. The sample included around 50 subjects wearing complete denture. The purpose of this survey was explained to the subjects and their informed consent was obtained. The questionnaire contained demographic information like name, age, gender, period of wearing, and other questions like frequency of cleaning, materials used for cleaning, to check for any difficulty while wearing the denture.

RESULTS

About 62% of the subjects which is nearly more than half of the sample size cleaned their denture twice a day. Majority of the subjects used only water and toothbrush to clean their dentures. People who had been wearing the denture for the past 10-30 years have good knowledge about the denture cleanliness and maintain it well than those who had been wearing it for a short period of time. Nearly 94% of the subjects do not have any reflex sensation while wearing the denture. Hardly any subjects find difficulty while cleaning their dentures. Most of the patients wearing complete denture do not use mouthwash and they do not seem to have any irritation while wearing the denture. Cheek bite or tongue bite did not occur in patients wearing the denture routinely. Since the complete

denture provides extensive support to the patient, and withstands the masticatory force very effectively, a vast number of subjects do not take out their denture while eating.

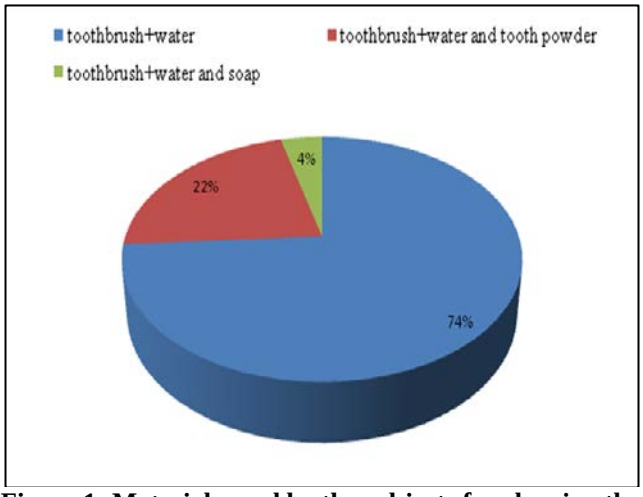


Figure 1: Materials used by the subjects for cleaning the denture

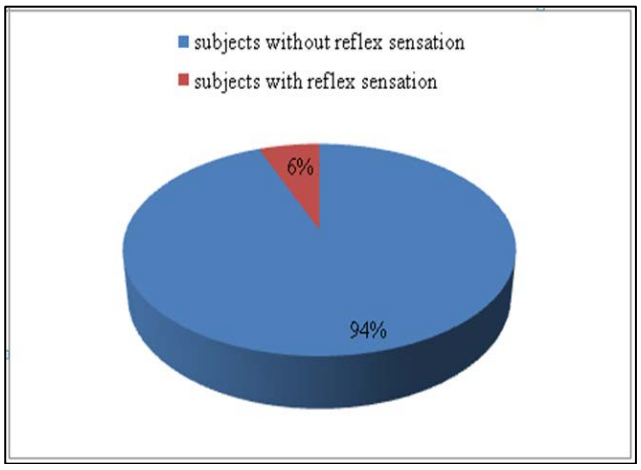


Figure 2: Incidence of reflex sensation caused by the denture

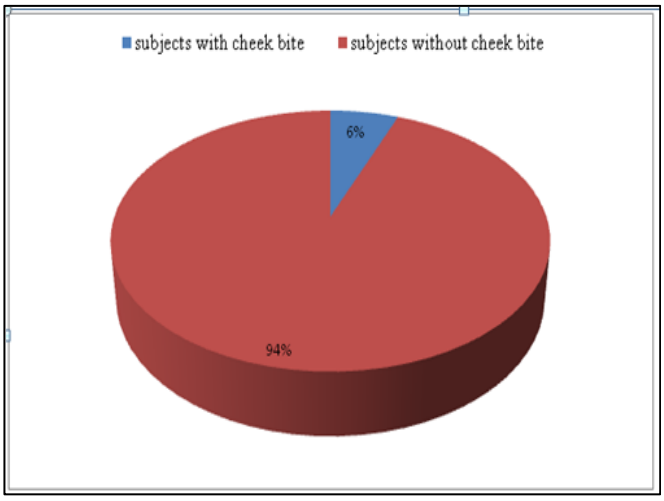


Figure 3: Occurrence of cheek bite

DISCUSSION

The wearing of new complete denture is usually associated with a lot of complaints. The complaints are looseness of the denture, pain, discomfort, masticatory problems, bad odor, altered speech and accumulation of food particles. In order to avoid any other infections or diseases, the denture must be maintained in a proper condition by cleaning it often. [30]

In the present study, most of the subjects used only water and toothbrush to clean their dentures (74%). This value was much higher than that reported by Apratim *et al.*, 2013[31] and lower than that reported by Patel *et al*., 2012 in Ahmedabad.[32]

However, the others studies conducted by Coelhe *et al.*, 2014[33] in Brazilian school of dentistry and Dikbas *et al.*, 2006[34] reported much higher values in comparison to the present study.

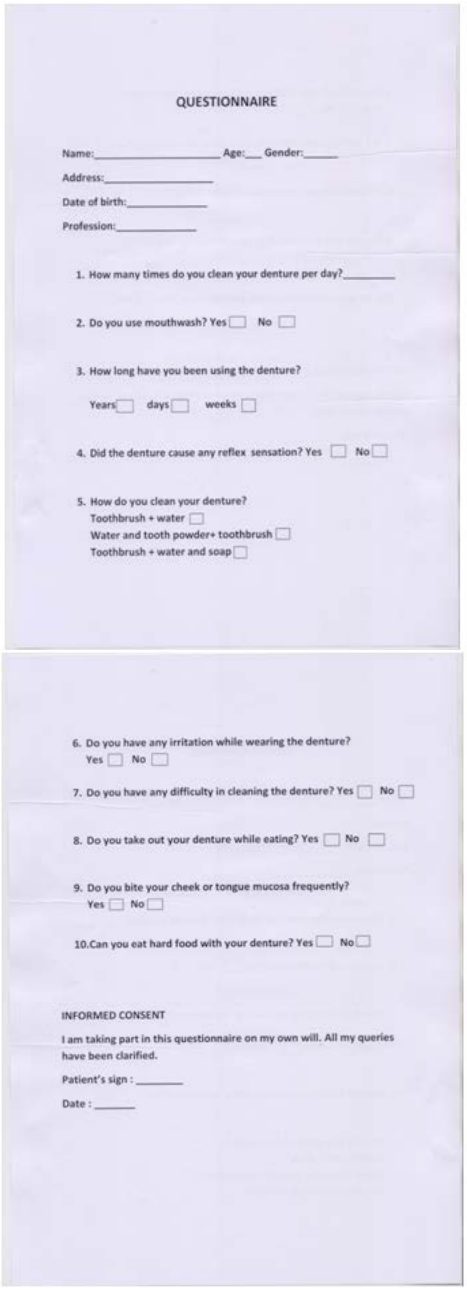
Only 4% of the individuals maintained their denture hygiene with water along with toothbrush and soap and these findings are very much less when compared to Patel *et al.*, 2012. [32]

This indicates that most of the elderly subjects are not very much aware of the denture hygiene and its various complications. The individuals do not use appropriate cleansing solutions to clean their denture properly. Most of them do not place the denture in water during sleep at night which in turn can cause many problems in the oral environment. The denture should be cleaned after placing in water overnight so as to remove any slimy layer which is most commonly present in it. The above mentioned results can be because of lack of awareness among the subjects and improper instructions given to them by the dentist after the insertion of the denture.

Mechanical methods such as toothbrushes are mostly recommended for cleaning routinely. However, surface abrasion can result from this which is extremely undesirable for esthetic and biological reasons. The pigmentation of the denture and abrasions are associated with the use of toothbrush and toothpaste. Peracini *et al.*, 2010[35] reported 58.49% of the subjects doing cleaning only by immersion and among substances used for immersion of the dentures; water was the most frequently used (38.71%).

The percentage of the subjects cleaning their dentures was maximum among those in the age group between 60 and 80 years followed by 45-55 years and >80years, respectively.

Improper maintenance of denture hygiene can lead to various lesions of the oral cavity associated with wearing of dentures. This in turn may represent acute or chronic reactions to dental plaque which is microbial in nature as result of reaction to the mechanical denture injury. Heterogeneous group of lesions are present with regard to the pathogenesis. Some of these include flabby ridges, oral carcinomas, traumatic mouth ulcers, denture irritation hyperplasia, angular cheilitis and denture stomatitis.



QUESTIONNAIRE

Name:_____ Age:___ Gender:_____

Address:_____

Date of birth:_____

Profession:_____

1. How many times do you clean your denture per day?_____

2. Do you use mouthwash? Yes ☐ No ☐

3. How long have you been using the denture?

Years ☐ days ☐ weeks ☐

4. Did the denture cause any reflex sensation? Yes ☐ No ☐

5. How do you clean your denture?
Toothbrush + water ☐
Water and tooth powder+ toothbrush ☐
Toothbrush + water and soap ☐

6. Do you have any irritation while wearing the denture?
Yes ☐ No ☐

7. Do you have any difficulty in cleaning the denture? Yes ☐ No ☐

8. Do you take out your denture while eating? Yes ☐ No ☐

9. Do you bite your cheek or tongue mucosa frequently?
Yes ☐ No ☐

10.Can you eat hard food with your denture? Yes ☐ No ☐

INFORMED CONSENT

I am taking part in this questionnaire on my own will. All my queries have been clarified.

Patient's sign : _____

Date : _____

Figure 4 & 5: Questionnaire

CONCLUSION

Under the limitations of this study, it was concluded that the patients interviewed had limited knowledge about prosthetic hygiene and oral care and that the subjects were totally unaware of the measures of cleaning the maxillary and mandibular dentures. A large number of patients used only water as a cleansing substance to clean their dentures along with the toothbrush. Scanty number of individuals used chemical method to clean their dentures, i.e. immersion in cleansing solution. Financial and socio-economic factors can be the other etiological reason for neglecting the use of denture cleaning aids. Several educational and motivational camps should be conducted in order to increase the awareness about denture cleanliness among the older subjects.

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