

Assessment of Clinical Periodontal Status Around Dental Implants and Teeth in Same Segment of Dentition with Respect to Different Age Groups

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ABSTRACT

Background: An implant is a welcome alternative to complex fixed or removable prosthesis as it simplifies the complex reconstructions. Evaluation by radiograph is considered as a method to measure crestal bone loss to facilitate a successful implant treatment. The present study was conducted to evaluate dental implants and teeth in same segment of dentition with respect to different age groups.

Materials & Methods: The study was conducted on 20 subjects visiting the Department of Prosthodontics and Crown & Bridge of the dental institute. This study population were divided into two groups; Group A: Patients belonged to the age group 18-40 years, and Group B: Patients belonged to the age group 40-60 years. Premedication of all the patients was done with appropriate antibiotics and all the surgeries were performed under local anesthesia using standard surgical protocol taking all precautions. After the preparation of osteotomy site, before the placement of implant, they were placed according to the required protocol. Postoperative instructions and medications will be given to the patient. Patients were recalled on regular follow-up and data obtained was recorded.

Conclusion: Elderly patients are associated with comparatively more pocket depth, bleeding on probing index and radiographic bone loss in comparison to younger patients.

Keywords: Dental, Implants, Pocket.

INTRODUCTION

An implant is a welcome alternative to complex fixed or removable prosthesis as it simplifies the complex reconstructions. Thus, oral rehabilitation through osseointegrated implants has become an important instrument for promoting quality of life.¹⁻³ Crestal bone loss has been documented as one of the important factors that affect the long term prognosis of implant supported restoration. It has been demonstrated that following implant surgery,

remodeling occurs and is characterized by a reduction in bone dimension, both horizontally and vertically. The concept of "platform switching" refers to the use of a smaller-diameter abutment on a larger-diameter implant collar introduced by Lazzara and Porter which further contributed to reduction of bone loss.

Evaluation by radiograph is considered as a method to measure crestal bone loss to facilitate a successful implant treatment.⁴⁻⁶ A vertical marginal

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peri-implant bone loss of 1–1.5 mm during the first year of function followed by a yearly bone loss of 0.1–0.2 mm has been reported in a number of clinical studies. However, when one-piece implants were utilized, minimal marginal bone loss has occurred.^{7, 8}The present study was conducted to evaluate dental implants and teeth in same segment of dentition with respect to different age groups.

MATERIALS & METHODS

The study was conducted on 20 subjects visiting the Department of Prosthodontics and Crown & Bridge of the dental institute. The ethical approval by the Institute Ethical Committee will be obtained. The subjects will be evaluated based on chief complaints requiring placement of missing teeth. This study population were divided into two groups

- Group A: Patients belonged to the age group 18-40 years.
- Group B: Patients belonged to the age group 40-60 years.

Before starting the procedure, all patients received thorough explanations. Prior to surgery requisite blood investigations were performed. Premedication of all the patients was done with appropriate antibiotics and all the surgeries were performed under local anesthesia using standard surgical protocol taking all precautions. After the preparation of osteotomy site, before the placement of implant, they were placed according to the required protocol. Postoperative instructions and medications will be given to the patient. Patients were recalled on regular follow-up and data obtained was recorded. All the results were analysed by SPSS software. Chi-square test was used for assessment of level of significance.

RESULTS

In the present study, mean bleeding on probing (BOP) around dental implants at baseline, 3 months and 6 months among subjects of group A was found to be 2.2mm, 1.8mm and 1.2 mm respectively. Mean BOP around dental implants at baseline, 3 months and 6 months among subjects of group B was found to be 2.6mm, 2.0 mm and 1.8 mm respectively. Significant results were obtained while comparing the mean BOP within group A and group B at different time intervals around dental implants. In

the present study, mean bleeding on probing (BOP) around adjacent tooth at baseline, 3 months and 6 months among subjects of group A was found to be 2.0mm, 1.4mm and 1.0 mm respectively. Mean BOP around dental implants around adjacent tooth at baseline, 3 months and 6 months among subjects of group B was found to be 2.2mm, 1.6 mm and 1.4 mm respectively. Significant results were obtained while comparing the mean BOP within group A and group B at different time intervals around adjacent tooth.

DISCUSSION

The study was conducted on 20 subjects visiting the Department of Prosthodontics and Crown & Bridge of the dental institute. In the present study, mean bleeding on probing (BOP) around dental implants at baseline, 3 months and 6 months among subjects of group A was found to be 2.2mm, 1.8mm and 1.2 mm respectively. Mean BOP around dental implants at baseline, 3 months and 6 months among subjects of group B was found to be 2.6mm, 2.0 mm and 1.8 mm respectively. In a previous study conducted by Karoussis IK et al, authors evaluated the association between periodontal and peri-implant conditions and the changes in these tissues over 10 years in partially edentulous patients in 89 patients and found it quite significant.⁹ In another study conducted by Schropp L et al, authors evaluated the patient experience and satisfaction between delayed-immediate and delayed single tooth implant placement. The study was to compare the surgical and prosthetic procedures and functional and esthetic satisfaction between early and delayed single tooth implants. Assessment of the implant surgery was not significantly different between the delayed-immediate and delayed group. The patients of this study were highly satisfied with the outcome of the treatment and experienced it without significant unpleasantness irrespective of the treatment concepts.¹⁰

In the present study, significant results were obtained while comparing the mean BOP within group A and group B at different time intervals around dental implants. In the present study, mean bleeding on probing (BOP) around adjacent tooth at baseline, 3 months and 6 months among subjects of group A was found to be 2.0mm, 1.4mm and 1.0 mm respectively. Cardaropoli. G et al

Table 1: Assessment of BOP around implant at baseline, 3 months and 6 months

Groups	Baseline		At 3 months		At 6 months		P value
	Mean	SD	Mean	SD	Mean	SD	
Group A	2.2	0.1	1.8	0.1	1.2	0.1	0.04
Group B	2.6	0.3	2.0	0.2	1.8	0.1	

Table 2: Assessment of BOP at adjacent teeth at baseline, 3 months and 6 months

Groups	Baseline		At 3 months		At 6 months		P value
	Mean	SD	Mean	SD	Mean	SD	
Group A	2.0	0.1	1.4	0.1	1.0	0.1	0.01
Group B	2.2	0.3	1.6	0.2	1.4	0.1	

Table 3: Assessment of clinically pocket depth around implant at baseline, 3 months and 6 months

Groups	Baseline		At 3 months		At 6 months		P value
	Mean	SD	Mean	SD	Mean	SD	
Group A	4.1	0.1	3.4	0.1	2.6	0.1	0.02
Group B	4.4	0.2	3.8	0.2	3.2	0.2	

Table 4: Assessment of clinically pocket depth at adjacent teeth at baseline, 3 months and 6 months

Groups	Baseline		At 3 months		At 6 months		P value
	Mean	SD	Mean	SD	Mean	SD	
Group A	4.4	0.1	3.6	0.1	3.2	0.1	0.01
Group B	4.8	0.2	4.0	0.1	3.8	0.2	

evaluated the dimensional alteration of the peri-implant tissues at single tooth restoration from the time of implant placement to 1-year post-loading. Assessments of the soft tissue at the implant site and at the neighboring teeth were performed 1) before and during implant placement 2) before abutment connection 3) after crown placement and at the 1-year follow-up examinations. They concluded that observed soft tissue alterations after the crown placement may affect the esthetic appeal of the restorative therapy.¹¹

In the present study, mean BOP around dental implants around adjacent tooth at baseline, 3 months and 6 months among subjects of group B was found to be 2.2mm, 1.6 mm and 1.4 mm respectively. Significant results were obtained while comparing the mean BOP within group A and group B at different time intervals around adjacent tooth. Abreu et al clinically and radiographically assessed

the peri-implant and periodontal conditions in partially edentulous patients with implant-supported fixtures installed, at least, one year prior to the study. 41 patients were examined by a calibrated examiner in relation to the following implant-associated parameters: Modified Plaque Index (mPII), Modified Bleeding Index (mBI), probing depth (PD), clinical attachment level (CAL) and bleeding on probing of the bottom of the crevice (BOP). Also, the remaining teeth were assessed in terms of Plaque Index (PII), Gingival Index (GI), PD, CAL and BOP. The peri-implant bone loss was evaluated by means of periapical radiographs. Measurements of pre-operative and final bone levels allowed an estimation of bone loss associated to teeth and a comparison with bone loss around implants. None of the individuals presented late loss of implants until the examination took place. No statistically significant differences were observed between PII (0.90±0.07) and mPII

(0.82 ± 0.13), or between GI (0.11 ± 0.02) and mBI (0.10 ± 0.02). However, PD, CAL and BOP values were higher in implants than in teeth. Implants presented a mean annual bone loss during the study period of 0.77mm (SE=0.06). Teeth virtually did not present any bone loss (mean value of 0.36%) whereas implants exhibited a bone loss value of 17.11%. Plaque accumulation and marginal inflammation did not differ between teeth and implants. However, subgingival inflammation was higher in implants than in teeth. The destruction measurements suggest greater losses in implants, as expected because of tissue remodeling.¹²

CONCLUSION

Under the light of above obtained data, the authors conclude that elderly patients are associated with comparatively more pocket depth, bleeding on probing index and radiographic bone loss in comparison to younger patients. However; further studies are recommended for better exploration of results.

CONFLICTS OF INTEREST

The authors declare they have no potential conflict of interests regarding this article.

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