



Clinical Outcomes of Dental Implants in Patients with and Without History of Periodontitis

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KEYWORDS

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ABSTRACT:

Background: This study was conducted to assess the Clinical outcomes of dental implants in patients with and without history of periodontitis.

Material and methods: The study included 100 participants. The subjects having complete edentulism, or with presence of an implant-supported overdenture, any acute/chronic auto-immune mucosal diseases, alcohol and drug abuse had been excluded from the study. Pregnant or lactating ladies as well as subjects with uncontrolled metabolic diseases were also excluded from the study. The subjects were divided into two groups. Group 1 was the control group in which the subjects had no history of periodontitis. Group 2 consisted of the subjects having a history of periodontitis. Statistical analysis was performed using SPSS software.

Results: Out of 100 participants, 50 were controls and 50 had a history of periodontitis. There were 21 males and 29 females in group 1 whereas there were 30 males and 20 females in group 2. It was observed that in the subjects having periodontitis, there occurred marginal bone loss around the dental implant. Out of 50 cases, 7 cases failed. Hence, the survival rate of dental implants in subjects having history of periodontitis was 86%. However, in healthy subjects, the success rate of dental implants was 98%.

Conclusion: The success rate of dental implants in subjects without having a history of periodontitis was higher than the subjects having a history of periodontitis. Hence, periodontitis affects the survival rate of dental implants and it should be diagnosed and corrected timely.

INTRODUCTION

The most common cause of teeth loss is periodontitis, and other causes include dental caries, trauma, developmental defects, and genetic disorders.¹ The use of dental implants to rehabilitate the loss of teeth has increased in the last 30 years.² Before dental implants, dentures and bridges were used, but dental implants have become a very popular solution due to the high success rate and predictability of the procedure, as well as its relatively few complications.^{1,3}

The dental implant has revolutionized oral rehabilitation and become a part of routine treatment in

prosthetic rehabilitation. There has been marked advancement in implant design, materials used, and surgical protocols.^{4,5} A high implant survival rate (94.6%) has been reported over a 13.4-year follow-up. Approximately 90% of patients who received an implant were satisfied with their chewing ability and accessibility for plaque control at the implant sites. Despite high long-term survival rates, complications due to peri-implant diseases are frequent and, in severe cases, result in the loss of the implants and their prostheses.



Hence, this study was conducted to assess the Clinical outcomes of dental implants in patients with and without history of periodontitis.

MATERIAL AND METHODS

The study included 100 participants. The subjects having complete edentulism, or with presence of an implant-supported overdenture, any acute/chronic auto-immune mucosal diseases, alcohol and drug abuse

had been excluded from the study. Pregnant or lactating ladies as well as subjects with uncontrolled metabolic diseases were also excluded from the study. The subjects were divided into two groups. Group 1 was the control group in which the subjects had no history of periodontitis. Group 2 consisted of the subjects having a history of periodontitis. Statistical analysis was performed using SPSS software.



Figure 1: Normal periodontium



Figure 2: Diseased periodontium

RESULTS

Table 1: Number of subjects in both groups.

Group	Number of subjects	Percentage
Group 1 (Control)	50	50%
Group 2 (Periodontitis)	50	50%
Total	100	100%

Out of 100 participants, 50 were controls and 50 had a history of periodontitis.

Table 2: Gender-wise distribution of subjects.

Gender	Number of subjects in group 1	Number of subjects in group 2	Total
Males	21	30	51
Females	29	20	49
Total	50	50	100

There were 21 males and 29 females in group 1 whereas there were 30 males and 20 females in group 2.

Table 3: Success rate of dental implants in both groups.

Fate of implants	Group 1 (n)	Group 2 (n)
Success	49 (98%)	43 (86%)
Failure	01 (02%)	07 (14%)
Total	50 (100%)	50 (100%)

It was observed that in the subjects having periodontitis, there occurred marginal bone loss around the dental implant. Out of 50 cases, 7 cases failed. Hence, the survival rate of dental implants in subjects

having history of periodontitis was 86%. However, in healthy subjects, the success rate of dental implants was 98%.

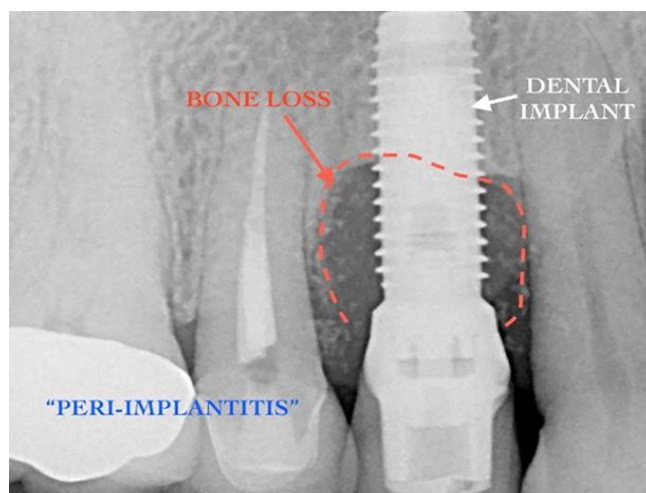


Figure 3: Bone loss around implants.

DISCUSSION

Periodontitis has been classified into chronic and aggressive subtypes. Aggressive periodontitis is characterized by rapid progression and destruction of periodontal tissue.^{6,7} It often occurs in the early decades of age in systemically healthy patients. Familial aggregation is often at play, as well. This disease occurs in localized and generalized forms. Generalized aggressive periodontitis (GAP) is characterized by the involvement of at least three permanent teeth other than first molars and incisors. It usually affects people under 30 years of age, but patients may be older. GAP is frequently associated with *Actinobacillus actinomycetemcomitans* and *Porphyromonas gingivalis*. It is believed that these patients may have a deficiency in the host immune system.⁸

Modern dental implant therapy has become a predictable and successful restorative option to restore missing teeth. Recent studies estimate a 10-year implant survival of 96.4% of implants, when using contemporary systems.⁹ Peri-implantitis is the most frequent complication, occurring in up to 20% of patients and 30% of implants.¹⁰ The actual prevalence of peri-implantitis can be difficult to assess, due to the heterogeneous diagnostic and case definition criteria.¹¹ Hence, this study was conducted to assess the Clinical outcomes of dental implants in patients with and without history of periodontitis.

In this study, out of 100 participants, 50 were controls and 50 had a history of periodontitis. There were 21 males and 29 females in group 1 whereas there were 30 males and 20 females in group 2. It was observed that

in the subjects having periodontitis, there occurred marginal bone loss around the dental implant. Out of 50 cases, 7 cases failed. Hence, the survival rate of dental implants in subjects having history of periodontitis was 86%. However, in healthy subjects, the success rate of dental implants was 98%.

The study conducted by Kim KK et al¹² aimed to assess outcomes of implant treatment in patients with generalized aggressive periodontitis. Studies considered for inclusion were searched in Pub-Med. The literature search for studies published in English between 2000 and 2012 was performed. Their findings included literature assessing implant treatment in patients with a history of generalized aggressive periodontitis (GAP). All studies were screened according to inclusion criteria. The outcome measures were survival rate of superstructures, marginal bone loss around implant and survival rate of implants. All studies were divided into two follow-up period: short term study (< 5 years) and long term study (≥ 5 years). Seven prospective studies were selected, including four short-term and three long-term studies. The survival rates of the superstructures were generally high in patients with GAP, i.e. 95.9 - 100%. Marginal bone loss around implant in patients with GAP as compared with implants in patients with chronic periodontitis or periodontally healthy patients was not significantly greater in short term studies but was significantly greater in long term studies. In short term studies, the survival rates of implants were between 97.4% and 100% in patients with GAP-associated tooth loss, except one study. The survival rates of implants were between 83.3% and 96% in patients with GAP in long term studies. Implant treatment in patients with GAP is not contraindicated provided that adequate infection control and an individualized maintenance program are assured.

The study conducted by Rocuzzo A et al¹³ aimed to present the 20-year clinical outcomes of tissue-level implants in partially edentulous patients previously treated for periodontitis and in periodontally healthy patients (PHP). The original population consisted of 149 partially edentulous patients consecutively enrolled in a private specialist practice and divided into three groups: PHP, moderately periodontally compromised patients (mPCP) and severely PCP (sPCP). After successful completion of periodontal/implant therapy, patients were enrolled in an individualized supportive periodontal care (SPC) programme. Eighty-four



patients rehabilitated with 172 implants reached the 20-year examination. During the observation time, 12 implants were removed (i.e., 11 due to biological complications and 1 due to implant fracture), leading to an overall implant survival rate of 93% (i.e., 94.9% for PHP, 91.8% for mPCP and 93.1% for sPCP [p = .29]). At 20 years, PCP compliant with SPC did not present with significantly higher odds of implant loss compared with PHP compliant with SPC (p > .05). Conversely, PCP not compliant with SPC experienced implant loss with odds ratio of 14.59 (1.30-164.29, p = .03). Tissue-level implants, placed after comprehensive periodontal therapy and SPC, yield favourable long-term results. However, patients with a history of periodontitis and non-compliant with SPC were at higher risk of biological complications and implant loss.

CONCLUSION

The success rate of dental implants in subjects without having a history of periodontitis was higher than the subjects having a history of periodontitis. Hence, periodontitis affects the survival rate of dental implants and it should be diagnosed and corrected timely.

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