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ORIGINAL RESEARCH

Evaluation of prognosis of dental implant in diabetic patient

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ABSTRACT:)

Background: Implant survival is initially dependent on successful osseointegration following placement. Any alteration of this biological process may adversely affect treatment outcome. Hence; under the light of above obtained data, the present study was undertaken for assessing the prognosis of dental implants in diabetic patients. **Materials & methods:** 200 diabetic patients who underwent dental implant procedures for prosthetic rehabilitation of missing mandibular first molars comprised of study group; and 200 healthy controls which underwent dental implant procedures for prosthetic rehabilitation of missing mandibular first molars. All the implant procedures were carried out under the hands of skilled and experienced oral implantologists. Follow-up details of all the patients were recorded upto a time period of one year. All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software. **Results:** Success occurred in 192 cases in diabetic group, while it occurred in 196 cases in the control group. Non- significant results were obtained while comparing the prognosis of dental implants in diabetic and non-diabetic patients. **Conclusion:** Success of dental implant in controlled diabetic patients with adequate treatment planning and precision is as equal as in normal subjects.

Key words: Dental Implant, Diabetes, Prognosis

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INTRODUCTION

Today, dental implants are one of the restorative methods to replace missing teeth. Implant survival is initially dependent on successful osseointegration following placement. Any alteration of this biological process may adversely affect treatment outcome.¹⁻³ Diabetes mellitus is a chronic disorder of carbohydrate metabolism characterized by hyperglycemia, reflecting distortion in physiological equilibrium in utilization of glucose by tissue, liberation of glucose by liver and production-liberation of pancreatic anterior pituitary and adrenocortical hormone. Various modern research and discoveries have shown that diabetes mellitus, more or less, affects every tissues of body directly or indirectly through late complications.⁴⁻⁶ Hence; under the light of above obtained data, the present study was undertaken for assessing the prognosis of dental implants in diabetic patients.

MATERIALS & METHODS

The present study was commenced with the aim of analyzing the prognosis of dental implants in diabetic patients.

Sample size: 200 diabetic patients who underwent dental implant procedures for prosthetic rehabilitation of missing mandibular first molars comprised of study group; and 200 healthy controls which underwent dental implant procedures for prosthetic rehabilitation of missing mandibular first molars.

Consent: Written consent was obtained from all the patients before the starting of the study

Inclusion criteria: Patients between the age group of 25 to 50 years who underwent dental implant procedure for missing mandibular first molars.

Exclusion criteria: Hypertensive patients, patients with history of any other systemic illness

Methodology

After taking the informed consent, preoperative assessment of all the patients was done. Complete medical and clinical details of all

the patients were obtained. The entire demographic details of all the patients were also recorded. All the implant procedures were carried out under the hands of skilled and experienced oral implantologists. Follow-up details of all the patients were recorded upto a time period of one year. All the results were recorded in Microsoft excel sheet and were analyzed by SPSS software. Chi-square test was used for assessment of level of significance.

RESULTS

In the present study, a total of 200 diabetic patients and 200 normal controls were included in the present study. Mean age of the patients of the diabetic and control group was 24.8 years and 26.8 years respectively. There were 125 males and 75 females in the diabetic group, while there were 130 males and 70 females in the control group.

In the present study, success occurred in 192 cases in diabetic group, while it occurred in 196 cases in the control group. Non-significant results were obtained while comparing the prognosis of dental implants in diabetic and non-diabetic patients.

Table 1: Demographic data of both the study groups

Parameter	Diabetic group	Control group
Mean age (years)	24.8	26.8
Males (n)	125	130
Females	75	70
Mean BMI (Kg/m ²)	25.6	26.8

Table 2: Prognosis of dental implants

Parameter	Diabetic group (n=200)	Control group (n=200)	p-value
Success	192	196	0.15
Failure	8	4	

DISCUSSION

Diabetes mellitus is a chronic disorder of carbohydrate metabolism characterized by hyperglycemia. It occurs when the pancreas does not produce enough insulin (type 1) or when the body cannot effectively use the insulin that it produces (type 2).⁷⁻⁹ Dental implants have been recognized as an acceptable treatment method for the replacement of missing teeth. A number of patient and procedure-related parameters determine the success of the implant treatment. Glycemic control is viewed as a critical variable in identifying whether patients with diabetes are eligible for implant therapy. If diabetes remains uncontrolled, then the high concentrations of extracellular glucose covalently bond to macromolecules in the body.⁸ Hence; under the light of above obtained data, the present study was undertaken for assessing the prognosis of dental implants in diabetic patients.

In the present study, a total of 200 diabetic patients and 200 normal controls were included in the present study. Mean age of the patients of the diabetic and control group was 24.8 years and 26.8 years respectively. There were 125 males and 75 females in the diabetic group, while there were 130 males and 70 females in the control group. Marchand F et al assessed the success of dental-implant treatment in patients with diabetes. Dental-implant

treatment is an efficient means of replacing lost teeth. However, diabetes can be considered a relative contraindication for this type of treatment because of the slightly higher failure rate compared with populations without diabetes. Prerequisite selection of suitable diabetic patients, eradication of co-morbidities (poor oral hygiene, cigarette-smoking, periodontitis), stabilization of glycaemic control (HbA1c) at around 7% and preventative measures against infection can increase the success of dental implantation in diabetic patients to a satisfactory rate of 85-95%. Implant surgery is never a matter of urgency; thus, diabetes patients with the best chances of success should be conjointly selected and prepared by both dental and diabetes clinicians.¹⁰

In the present study, success occurred in 192 cases in diabetic group, while it occurred in 196 cases in the control group. Non-significant results were obtained while comparing the prognosis of dental implants in diabetic and non-diabetic patients. Eskow CC et al evaluated survival and clinical complications of dental implants following placement in type 2 diabetes individuals having poor glycemic control. Adult participants (n=24) with poorly controlled type 2 diabetes (8.0% ≤ HbA1c ≤ 12.0%) received two or more transgingival dental implants. Survival was evaluated after one (23 participants, 72 implants) and two (20 participants, 59 implants) years. Clinical complications were evaluated in 18 participants (52 implants) after 21–34 months. Relationships between complications and stratified HbA1c levels were assessed using Pearson's correlation test. Survival rates were 98.6% (71/72 implants) after 1 year and 96.6% (57/59 implants) after 2 years. Complications were identified in 29% of participants with peri-implant mucositis, the most common event. Complications correlated directly with number of implants across HbA1c strata (0.42, R²=0.66). There was no correlation between HbA1c and the occurrences of complications or mucositis. This 2-year evaluation supported the broader application of implant therapy in type 2 diabetes individuals with poor glycemic control in demonstrating high survival rates with limited complications.¹¹

CONCLUSION

Under the light of above obtained results, the authors conclude that success of dental implant in controlled diabetic patients with adequate treatment planning and precision is as equal as in normal subjects. However; further studies are recommended.

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