International Journal of Research in Health and Allied Sciences

Journal home page: www.ijrhas.com

Official Publication of "*Society for Scientific Research and Studies*" [Regd.]

ISSN 2455-7803 Index Copernicus value 2016 = 68.10

Original Article

Evaluation of Prognosis of Dental Implants in Diabetic Patients: An Observational Study

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ABSTRACT

Background: Recognizing conditions that place the patient at a higher risk of complications will allow the surgeon to make informed decisions and refine the treatment plan to optimize the outcomes.Hence; under the light of above mentioned data, we planned the present study to assess the prognosis of dental implants in diabetic patients. **Materials & methods:** The present study included evaluation of prognosis of dental implant therapy in diabetic patients. A total of 300 patients scheduled to undergo prosthetic rehabilitation for missing maxillary first permanent molar by dental implants. Dental implant placement procedure was carried out in all the patients by skilled and experienced implantologist. Follow-up records were maintained in all the patients' upto 2 years. Failure rate in dental implants was recorded in Microsoft excel sheet and were analysed by SPSS software. **Results:** A total of 300 subjects were included in the present study. Among these 300 patients, 180 were males, while remaining 120 patients were females. Mean age of the patients of the present study were 43.5 years. Successful dental implant therapy outcome at 2 years follow-up was seen in 290 subjects. Therefore, overall success rate of dental implant therapy in the present study was 96.7 percent. **Conclusion:** Dental implant procedure can be successfully performed in diabetic patients with good prognosis.

Key words: Dental implants, Diabetes, Prognosis

Received: 13 May 2018 Revised: 16 September 2018 Accepted: 21September 2018

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This article may be cited as: Gangil L, Kumar S, Ering A. Evaluation of Prognosis of Dental Implants in Diabetic Patients: An Observational Study. Int J Res Health Allied Sci 2018; 4(5):44-46.

INTRODUCTION

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.[1-3] Type -1 diabetes causes decreased bone mineral density, as well as reduced bone formation and higher bone resorption whereas Type -2 diabetes produces normal or greater bone mineral density in some patients.The ability to anticipate outcomes is an essential part of risk management in dental implant surgery. Recognizing conditions that place the patient at a higher risk of complications will allow the surgeon to make informed decisions and refine the treatment plan to optimize the outcomes.[4-8]Hence; under the light of above mentioned data, we planned the present study to assess the prognosis of dental implants in diabetic patients.

MATERIALS & METHODS

The present study was carried out in the department of oral implantology and it included evaluation of prognosis of dental implant therapy in diabetic patients. A total of 300 patients scheduled to undergo prosthetic rehabilitation for missing maxillary first permanentmolar by dental implants. Exclusion criteria for the present study included:

- Hypertensive patients,
- Patients with positive history of any other bone metabolic disorder,
- Patients with positive history of any known drug allergy

Dental implant placement procedure was carried out in all the patients by skilled and experienced implantologist. Follow-up records were maintained in all the patients' upto 2 years. Failure rate in dental implants was recorded in Microsoft excel sheet and were analysed by SPSS software.

RESULTS

A total of 300 subjects were included in the present study. Among these 300 patients, 180 were males, while remaining 120 patients were females. Mean age of the patients of the present study were 43.5 years. Majority of the patients (100 patients) belonged to the age group of 40- 50 years.Table 2 and Graph 2 show the prognosis of dental implants. Successful dental implant therapy outcome at 2 years follow-up was seen in 290 subjects. Therefore, overall success rate of dental implant therapy in the present study was 96.7 percent.

Table 1: Demographic data

Age group (years)	Number of patients	Percentage
Less than 30	40	13.3
30 to 40	80	26.7
41 to 50	100	33.3
More than 50	80	26.7

Graph 1: Gender distribution

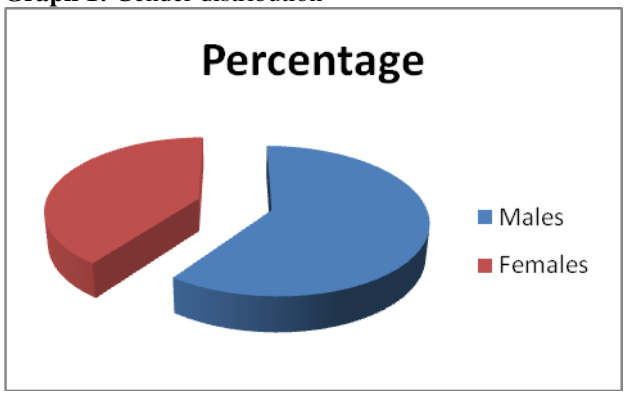
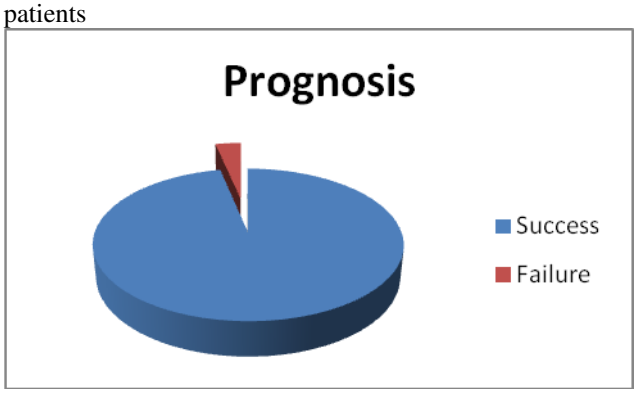


Table 2: Prognosis of dental implants in diabetic patients

Prognosis	Number of patients	Percentage
Success	290	96.7
Failure	10	3.3

Graph 2: Prognosis of dental implants in diabetic patients



DISCUSSION

Taken together, there are numerous studies that offer indirect evidence for diabetes patients to benefit from oral rehabilitation using dental implant therapy. There is also considerable evidence documenting compromises in bone metabolism associated with hyperglycemic conditions with the potential for these risks to mitigate benefits gained from implant therapy. Biologic studies suggest diabetes-related effects on bone metabolism; however, true differences in metabolic effects between type 1 and type 2 diabetes remain unclear. Similarly, the translation of results from hyperglycemic animal studies to patients remains to be elucidated.[9]Hence; under the light of above mentioned data, we planned the present study to assess the prognosis of dental implants in diabetic patients.

In the present study, a total of 300 subjects were included in the present study. Among these 300 patients, 180 were males, while remaining 120 patients were females. Mean age of the patients of the present study were 43.5 years. Majority of the patients (100 patients) belonged to the age group of 40- 50 years. Inbarajan A et al evaluated the efficacy of implant supported tooth replacement in diabetic patients. The study involved placement of implants (UNITI implants, Equinox Medical Technologies, Zeist, Holland, diameter of 3.7 mm and length 13 mm) in five diabetic patients (three females and two males) of age ranging from 35-65 years with acceptable metabolic control of plasma glucose. All patients included in the study were indicated for single tooth maxillary central incisor replacement, with the adjacent teeth intact. The survival of the restored implants was assessed for a period of three months by measurement of crestal bone heights, bleeding on probing and micro flora predominance. Paired t-test was done to find out the difference in the microbial colonization, bleeding on probing and crestal bone loss. P values of less than 0.05 were taken to indicate statistical significance. Results indicated that there was a significant reduction in bleeding on probing and colonization at the end of three months and the bone loss was not statistically significant. The study explores the hypothesis that patients with diabetes are appropriate candidates for implants and justifies the continued evaluation of the impact of diabetes on implant success and complications.[10]

In the present study, successful dental implant therapy outcome at 2 years follow-up was seen in 290 subjects. Therefore, overall success rate of dental implant therapy in the present study was 96.7 percent.Raghav D et al we assessed the clinicomicrobial and salivary profile of diabetic patients undergoing rehabilitation by dental implants.This study included diabetic patients who underwent dental implant surgeries for prosthetic rehabilitation. Follow-up records of the patients' up to 1 year were maintained. Various clinicoradiographic and periodontal parameters were measured at various time intervals during follow-up time; 25 mL of salivary and blood sample was taken from all the subjects and was sent to the laboratories for assessment of various salivary biomarkers.The mean level of interleukin-p at baseline time was found to be 2.38 and 2.21 in diabetic group and control group respectively. While comparing the levels of osteoprotegerin in both study groups, a significant correlation was obtained. In diabetic and control group, 62 and 61 years was the mean age of the patients respectively. No significant correlation was obtained while comparing the microbial flora of diabetic and

control group.In both diabetic and nondiabetic patients, similar microbial, salivary marker, and clinicoradiological patterns were seen.[11]

CONCLUSION

With diabetes contributing to oral pathologies and tooth loss, tooth replacement as can be provided with implant therapy may be an important contributor to the patient's overall well-being. Under the light of above obtained data, the authors conclude that dental implant procedure can be successfully performed in diabetic patients with good prognosis.

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Source of support: Nil **Conflict of interest:** None declared