

ORIGINAL RESEARCH

Risk factors of peri- implantitis- A clinical study

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ABSTRACT:

Background: Implant therapy is a consolidated procedure for full and partial rehabilitation of edentulous arches. The present study was conducted to evaluate risk factors of peri- implantitis. **Materials & Methods:** The present study was conducted 82 patients who received 152 dental implants of both genders. Patients information such as medical history which included history of periodontitis, diabetes, Cardio- vascular diseases, smoking, alcohol, bruxism etc. was recorded. Patients were recalled regularly and the rate of peri- implantitis was recorded clinically as well as radiographically. **Results:** Out of 82 patients, males were 48 and females were 34. Males had 80 and females had 72 dental implants. Out of 152 dental implants, 16 (10.5%) showed dental implants failures. Peri- implantitis was seen in gingivitis in 1, periodontitis in 2, smokers in 4, alcoholics in 1, bruxism in 2, diabetes in 4 and cardio- vascular diseases in 2. The difference was significant ($p < 0.05$). **Conclusion:** there were 16 cases of peri- implantitis out of 154 dental implants. Risk factors were smoking, diabetes, alcoholism, periodontal diseases and bruxism.

Key words: Bruxism, Peri-implantitis, Periodontitis

Received: 12 June, 2019

Revised: 24 June, 2019

Accepted: 25 June, 2019

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This article may be cited as: Pandey A, Rao V, Singh A, Bagaria A, Hedau LR. Risk factors of peri- implantitis- A clinical study. Int J Res Health Allied Sci 2019; 5(4):32-35.

INTRODUCTION

Implant therapy is a consolidated procedure for full and partial rehabilitation of edentulous arches and this was widely supported by a large number of prospective studies with long term follow-up.¹ The availability of bone volume could be an important factor that influences the possibility of achieving an adequate restoration through implant placement. In fact, in cases of severe bone atrophy, the available bone may not be sufficient for implant placement, requiring the adoption of bone grafting procedures.² Even though bone grafting procedures could be associated with high success rates, as reported by a number of studies, many complications and adverse sequelae could occur due to the demanding surgical procedure.³

Implant systems today, have come a long way to provide comfort and long-term success in patients requiring

implant-supported prosthesis as part of oral rehabilitation.⁴

The ongoing research in this area has made it even possible for dental implants to be available at very affordable cost, to enable the technology reach the masses.⁵ Current studies have verified single risk factors of peri-implantitis, but there still is a need for systematic reviews gathering this information. This is because peri-implantitis is still a quite young clinical picture and studies examining it applied varying disease definitions.⁶ The present study was conducted to evaluate risk factors of peri- implantitis.

MATERIALS & METHODS

The present study was conducted in the department of Prosthodontics and Oral & Maxillofacial surgery. It comprised of 82 patients who received 152 dental implants of both genders. The study was approved from institutional

ethical committee. All participants were informed regarding the study and written consent was obtained. Information such as name, age, gender etc. was recorded. Patients information such as medical history which included history of periodontitis, diabetes, Cardio-vascular diseases, smoking, alcohol, bruxism etc. was recorded.

Patients were recalled regularly and the rate of peri-implantitis was recorded clinically as well as radiographically. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

RESULTS

Table I Distribution of patients

Gender	Males	Females
Number	48	34
Number of implants	80	72

Table I shows that out of 82 patients, males were 48 and females were 34. Males had 80 and females had 72 dental implants.

Graph I Distribution of patients

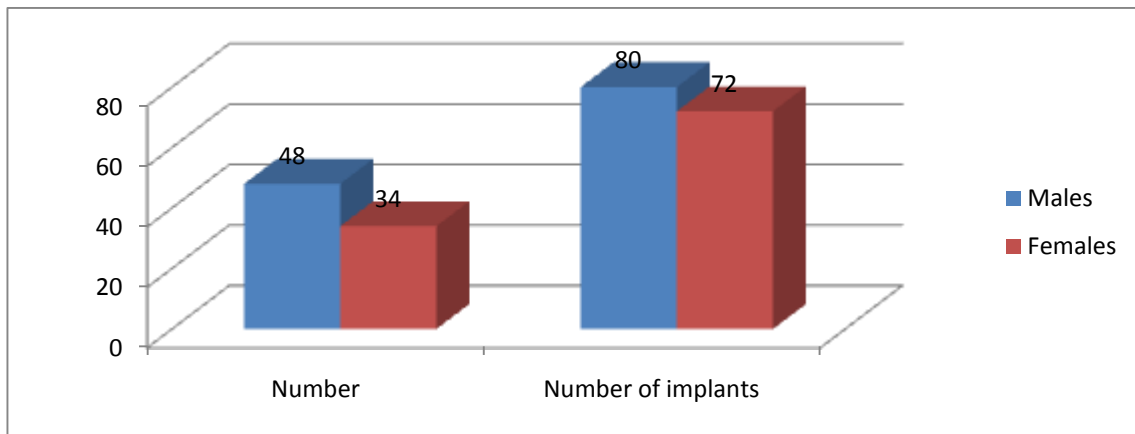


Table II Prevalence of peri- implantitis

Total Implants	Failures	Percentage
152	16	10.5%

Table II shows that out of 152 dental implants, 16 (10.5%) showed dental implants failures.

Graph II Prevalence of peri- implantitis

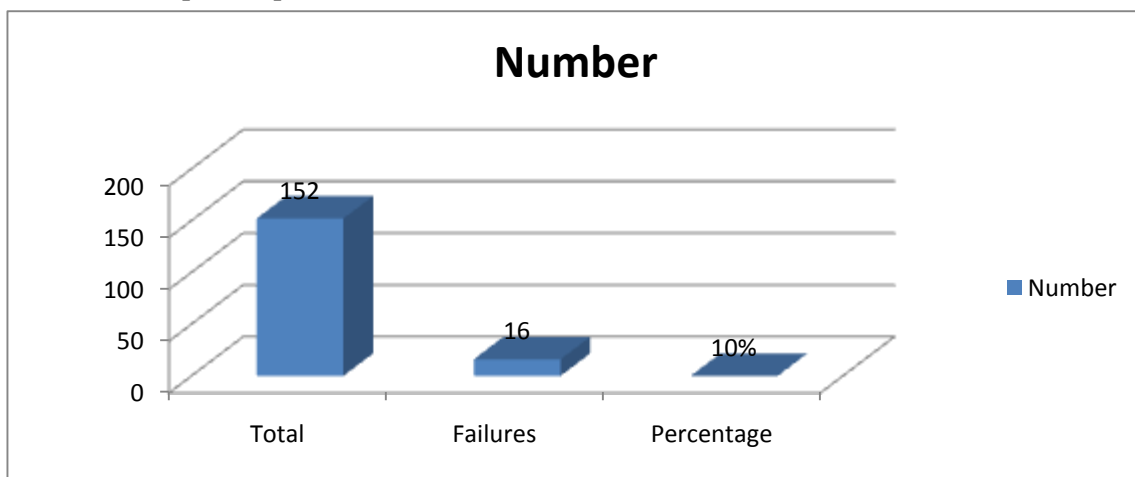


Table III Risk factors of Peri- implantitis

Habits	Peri- implantitis	P value
Gingivitis	1	0.01
Periodontitis	2	
Smokers	4	
Alcoholics	1	
Bruxism	2	
Diabetes	4	
Cardio- vascular diseases	2	

Table III shows that peri- implantitis was seen in gingivitis in 1, periodontitis in 2, smokers in 4, alcoholics in 1, bruxism in 2, diabetes in 4 and cardio- vascular diseases in 2. The difference was significant ($p < 0.05$).

DISCUSSION

Peri-implant mucositis can be described as a reversible inflammatory reaction of the soft tissues surrounding an implant whereas peri-implantitis can be identified by inflammatory reactions associated with bone loss around the implant.⁷ The 6th and 7th workshops of periodontology suggested the clinical definition of peri-implant mucositis as the presence of bleeding on probing without loss of supporting bone. Peri-implantitis was defined as bleeding on probing, probing depth > 4 mm, and peri-implant bone loss.⁸ The present study was conducted to assess prevalence of peri- implantitis.

In this study, out of 82 patients, males were 48 and females were 34. Males had 80 and females had 72 dental implants. In 9 studies, a total of 761 patients were evaluated biological complications for 2511 implants. In 3 studies, implant failure was assessed according to marginal bone loss. As a result of the studies, there was a clear evidence in 3 studies to evaluate bruxism as a risk factor for implant failure; in the remaining 6, there was no relationship between bruxism and implant loss. As a result, the presence of bruxism is likely to be a risk factor for mechanical complications in implant periphery, but it is unlikely to be a potential risk factor for biological complications.⁹

We found that out of 152 dental implants, 16 (10.5%) showed dental implants failures. Peri- implantitis was seen in gingivitis in 1, periodontitis in 2, smokers in 4, alcoholics in 1, bruxism in 2, diabetes in 4 and cardio-vascular diseases in 2. The difference was significant ($p < 0.05$). Bhatia A et al¹⁰ have studied the association between alcohol consumption and marginal bone loss and that alcohol-induced more serious peri-implantitis than cigarettes. Studies on genetic traits have shown conflicting results with no conclusive evidence either proving or disproving an association.

Ferreira et al¹¹ conducted a study and found that Fifty-seven studies were included in the systematic review. Overall, the prevalence of peri-implantitis on implant level ranged from 1.1% to 85.0% and the incidence from 0.4% within 3 years, to 43.9% within 5 years, respectively. The median prevalence of peri-implantitis was 9.0% (SSA 10.9%) for regular participants of a prophylaxis program,

18.8% (SSA 8.8%) for patients without regular preventive maintenance, 11.0% (SSA 7.4%) for non-smokers, 7.0% (SSA 7.0%) among patients representing the general population, 9.6% (SSA 9.6%) for patients provided with fixed partial dentures, 14.3% (SSA 9.8%) for subjects with a history of periodontitis, 26.0% (SSA 28.8%) for patients with implant function time ≥ 5 years and 21.2% (SSA 38.4%) for ≥ 10 years. On a medium and medium-high level of evidence, smoking (effect summary OR 1.7, 95% CI 1.25-2.3), diabetes mellitus (effect summary OR 2.5; 95% CI 1.4-4.5), lack of prophylaxis and history or presence of periodontitis were identified as risk factors of peri-implantitis.

Alcohol consumption can cause peri-implantitis as well as indirectly caused by periodontitis. One of the reasons for the lack of vitamin K is the frequent consumption of alcohol. In healthy individuals, prothrombin production is normal, but alcohol can break the prothrombin repletion and thus reduce it, thus affecting the coagulation mechanisms. Furthermore, contents found in alcoholic beverages such as a mixture of toxic alcohol, nitrosamines, and ethanol can also cause osteoclasts, as well as inhibit bone stimulation.¹²

CONCLUSION

We found that there were 16 cases of peri- implantitis out of 154 dental implants. Risk factors were smoking, diabetes, alcoholism, periodontal diseases and bruxism.

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