

## Original Article

### Association of Oral Hygiene & Peri- implantitis- A Clinical Study

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#### ABSTRACT:

**Background:** Dental implants have become today an important treatment option for oral rehabilitation in patients with lost teeth. The present study was conducted to determine association of oral hygiene and peri- implantitis. **Materials & Methods:** The present study was conducted in the department of prosthodontics on 112 cases of both genders (males- 62, females- 50). Patients were divided into 2 groups of 56 patients each. Group I comprised of healthy patients without periodontitis and group II consisted of patients with periodontitis. The presence of periodontitis was confirmed by clinical attachment loss, probing pocket depth and bleeding on probing. The presence of radiolucency on radiographs around implant confirmed Peri- implantitis. **Results:** Out of 112 patients, males were 62 and females were 50. The difference was non- significant ( $P > 0.05$ ). Group I and II comprised of 56 patients each. The difference was non- significant ( $P > 0.05$ ). Peri- implantitis was seen in 2 patients in group I and 14 patients in group II. The difference was significant ( $P < 0.05$ ). **Conclusion:** There is direct relation between chronic periodontitis and peri-implantitis. All patients who receive dental implants need to be free from periodontitis in order to ensure success.

**Key words:** Chronic Periodontitis, Dental implants, Peri- implantitis

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#### INTRODUCTION

Dental implants have become today an important treatment option for oral rehabilitation in patients with lost teeth. It would be expected that peri-implant diseases and implant complications may increase by the routine use of dental implants. Consequently, understanding of the etiology, mechanisms, classification, and treatment protocol of peri-implant diseases is necessary for clinicians involved in implant dentistry.<sup>1</sup>

Despite the high success and survival rates of oral implants, failures do occur, and implant supported prostheses may require substantial periodontal and prosthodontic maintenance over time. Implant failures have been traditionally described as early or late. Early failures occur before implant loading and could be caused by surgery-

implant or host-related factors. Late failures, on the other hand, occur after prosthodontic rehabilitation as a result of peri-implant disease or biomechanical overload.<sup>2</sup>

The term peri-implantitis first appeared in the literature in 1987 in a study by Mombelli et al.<sup>3</sup> It was described as an infectious disease with many features common to periodontitis. Since then, a growing interest in defining peri-implant disease as a clinical entity and proposing a treatment approach for it has been observed. The multifaceted etiology and varied characteristics of the disease, however, resulted in lack of consensus in defining peri-implant disease from a clinical perspective.

Chronic periodontitis (CP) is a progressive disease of dental supporting tissues, which is of infectious nature and characterized similarly by BOP, pathological pocketing,

clinical attachment loss (CAL) and bone resorption. Both periodontitis and peri-implant may lead to loss of teeth and implants if not treated.<sup>4</sup> The plaque formed on the tooth and implant surfaces contains hundreds of different bacterial species and many of them may participate in the progression of the lesions. Previously, bacterial analysis has used culture technique and great similarities were found microbiologically between the periodontitis and peri-implant lesions.<sup>5</sup> The present study was conducted to determine association of oral hygiene and peri- implantitis.

**MATERIALS & METHODS**

The present study was conducted in the department of prosthodontics. It comprised of 112 cases of both genders (males- 62, females- 50). All were informed regarding the

study and written consent was obtained. Ethical clearance was obtained prior to the study.

Those who had atleast 2 dental implants in mandibular posterior Presence of oral diseases except periodontitis, diabetes mellitus, pregnancy, lactating women were excluded from the study. Patients were divided into 2 groups of 56 patients each. Group I comprised of healthy patients without periodontitis and group II consisted of patients with periodontitis. The presence of periodontitis was confirmed by clinical attachment loss, probing pocket depth and bleeding on probing. The presence of radiolucency on radiographs around implant confirmed Peri- implantitis. In both groups, the presence of peri-implantitis was suggestive of treatment failure. Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

**RESULTS**

**Table I Distribution of patients based on gender**

Total- 112		
Males	Females	P value
62	50	0.1

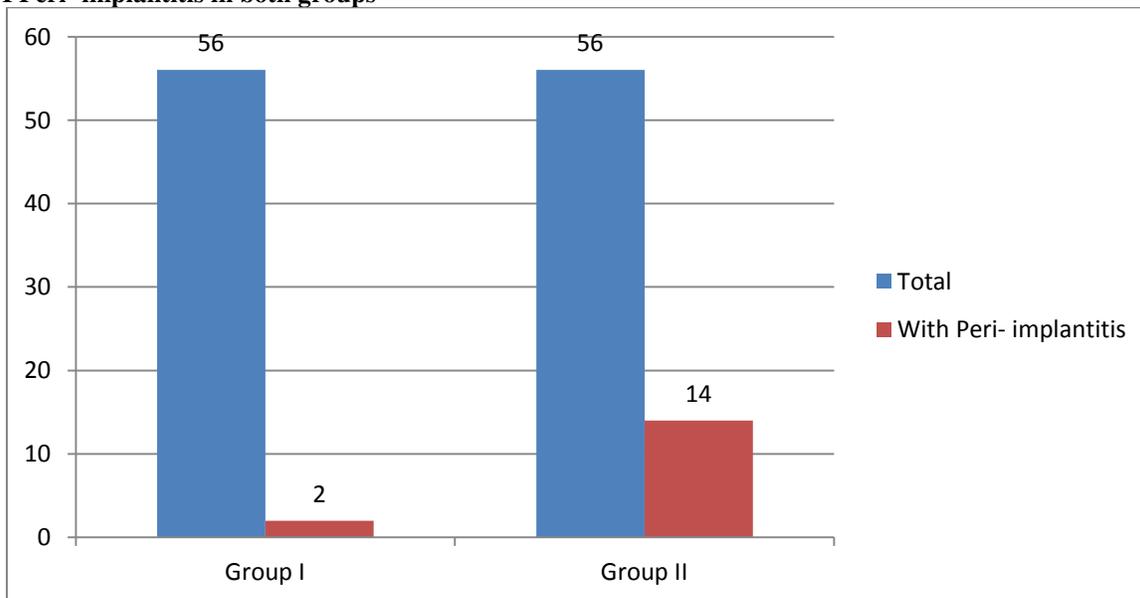
Table I shows that out of 112 patients, males were 62 and females were 50. The difference was non- significant (P> 0.05).

**Table II Distribution of patients in both groups**

Group I (Healthy)	Group II (Periodontitis)	P value
56	56	1

Group I and II comprised of 56 patients each. The difference was non- significant (P> 0.05).

**Graph I Peri- implantitis in both groups**



Graph I shows that peri- implantitis was seen in 2 patients in group I and 14 patients in group II. The difference was significant (P< 0.05).

## DISCUSSION

It is generally acknowledged that chronic periodontitis and peri-implantitis have a similar nature i.e. bacterial involvement leads to host inflammatory response that in turn may progress into periodontitis and peri-implantitis. Bone resorption and loss of teeth and implants failure if left untreated may be the final stage of CP and PI. A similar bacterial profile of the pathological pocketing in chronic periodontitis and peri-implantitis has thus been suggested.<sup>6</sup>

The prevalence of peri-implant diseases has been reported in the literature. However, considerable variations among these studies are noted. In a systematic review by Berglundh et al.<sup>7</sup> the biologic and technical complications in oral implant therapy were summarized by reviewing a large number of longitudinal prospective studies. Zitzmann and Berglundh<sup>8</sup> showed that the frequency of peri-implantitis varied between 28% and 56% of the participants and 12% and 43% of individual implants. The causes for the discrepancy in the results reported in these systematic reviews could be the lack of standardized criteria for diagnosing peri-implant mucositis and peri-implantitis, the different implant systems used or the differences in the observation periods.

In present study, out of 112 patients, males were 62 and females were 50. Group I and II comprised of 56 patients each. Ateih et al<sup>9</sup> in their study found that out of 504 studies identified, nine studies with 1,497 participants and 6,283 implants were included. The summary estimates for the frequency of peri-implant mucositis were 63.4% of participants and 30.7% of implants, and those of peri-implantitis were 18.8% of participants and 9.6% of implants. A higher frequency of occurrence of peri-implant diseases was recorded for smokers, with a summary estimate of 36.3%. Supportive periodontal therapy seemed to reduce the rate of occurrence of peri-implant diseases.

In present study, peri- implantitis was seen in 2 patients in group I and 14 patients in group II. Ebadian et al<sup>10</sup> suggested that chronic periodontitis (CP) and peri-implantitis (PI) are multifactorial diseases of tooth and implant supporting apparatus. Bacterial invasion and consequent host immune response seem to play a role in relevant pathogenesis. The structural differences between tooth and implant pose preferential biofilm colonization. Clinical and radiographic examination performed over 69 individuals and four groups categorized: CP (n=22), HP (n=21), PI (n=13) and HI (n=13). The mean age was 45.6

years, 55% of participants were female and 45% were male. Bacterial samples were collected by paper point method. Significant differences were observed for *T. forsythia*, *P. intermedia*, *C. rectus*, *P. endodontic*, *P. gingivalis*, *T. denticola* and *P. tannerae*. The most prevalent bacteria in CP and PI were *T. forsythia* and *P. gingivalis*, respectively. In conclusion, bacterial prevalence differs significantly between tooth and implant. The most prevalent bacteria in Iranian subpopulation do not necessarily bear a resemblance to other populations. The type of implant surface may influence the biofilm.

## CONCLUSION

There is direct relation between chronic periodontitis and peri-implantitis. All patients who receive dental implants need to be free from periodontitis in order to ensure success.

## REFERENCES

1. Ohnishi M. Quantitative analysis of periodontal pathogens in aggressive periodontitis patients in a Japanese population. *Kokubyo Gakkai Zasshi* 2006; 73(1):70-8.
2. Zitzmann NU, Berglundh T. Definition and prevalence of peri-implant diseases. *J Clin Periodontol* 2008; 35: 286-91.
3. Kadkhodazadeh M, Amid R. Implant success index (ISI): a new scoring system to evaluate the clinical outcomes of dental implants. *J Clin Periodontol* 2012; 39 (Suppl): 209.
4. Sato J, Gomi K, Makino T, Kawasaki F, Yashima A, Ozawa T, Maeda N, Arai T. The evaluation of bacterial flora in progress of peri-implant disease. *Aust Dent J* 2011; 56(2):201-6.
5. Charalampakis G, Rabe P, Leonhardt A, Dahlén G. A follow-up study of peri-implantitis cases after treatment. *J Clin Periodontol* 2011; 38(9):864-71.
6. Charalampakis G, Leonhardt A, Rabe P, Dahlén G. Clinical and microbiological characteristics of peri-implantitis cases: a retrospective multicentre study. *Clin Oral Implants Res* 2011; 2: 1-5.
7. Berglundh T, Persson L, Klinge B. A systematic review of the incidence of biological and technical complications in implant dentistry reported in prospective longitudinal studies of at least 5 years. *J Clin Periodontol* 2002; 29: 197-212.
8. Zitzmann, Berglundh López-Cerero L. Dental implant-related infections. *Enferm Infecc Microbiol Clin* 2008; 26(9):589-92.
9. Ateih, Fransson C, Wennström J, Berglundh T. Clinical characteristics at implants with a history of progressive bone loss. *Clin Oral Implants Res* 2008; 19(2):142-7.
10. Ebadian, Jung RE, Pjetursson BE, Glauser R, Zembic A, Zwahlen M, Lang NP. A systematic review of the 5-year survival and complication rates of implant supported single crowns. *Clin Oral Implants Res* 2008; 19:119-130.

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