

Incidence of Peri- Implantitis among known population

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Abstract:

Background: This study was conducted to assess the Incidence of Peri-Implantitis.

Material and methods: The population included both male as well as female patients over the age of 18 who had a single crown cemented in place, a single crown screwed in place, a fixed screw-retained partial prosthesis, a fixed cemented partial prosthesis, a partial prosthesis with a cantilever, a complete hybrid prosthesis, a metal-ceramic prosthesis, or an overdenture secured to two or four implants.

Results: Out of 100, 50 subjects were males and 50 were females. It was seen that out of 100 subjects, peri-implantitis was observed in 45 subjects. The study also found that peri-implantitis is significantly less common among nonsmokers (5 patients) than it is among smokers (21 patients who smoke less than 10 cigarettes daily and 11 patients who smoke more than 10 cigarettes daily). Alcohol consumption is another factor with statistically significant findings. Peri-implantitis is more significant in heavy smokers (7 patients) than in those who don't smoke at all (29 participants).

Conclusion: Our study's findings suggest that a higher lifetime exposure to tobacco products (more cigarettes smoked per day) is associated with an increased risk of getting peri-implantitis.

Keywords: peri-implantitis, smoking, periodontal, incidence.

Introduction:

Dental implants have become an indispensable established therapy in dentistry in order to replace missing teeth in different clinical situations. Success rates of 82.9% after 16 years follow-up have been reported [1]. In analogy to gingivitis and periodontitis affecting the periodontium of natural teeth, an inflammation and destruction of soft and hard tissues surrounding dental implants is termed as mucositis and peri-implantitis [2-4]. Thereby, transitions are often fluent and not clinically clearly separable [5]. Epidemiologic reports on peri-implant diseases across the globe demonstrated a wide range according to the population screened and the case definition adopted. Other factors, such as compliance with supportive therapy and characteristics of patient samples and implant recipient sites may influence heterogeneity in reporting and make comparisons among studies challenging. For example, outcomes of a publication on the effectiveness of implant therapy in a Swedish population sample indicated that significantly higher

odds ratios for moderate/severe peri-implantitis were found for patients diagnosed with periodontitis (OR 4.08) compared with periodontally healthy patients [6]. Hence, this study was conducted to assess the Incidence of Peri-Implantitis.

Material and methods:

The population included both male as well as female patients over the age of 18 who had a single crown cemented in place, a single crown screwed in place, a fixed screw-retained partial prosthesis, a fixed cemented partial prosthesis, a partial prosthesis with a cantilever, a complete hybrid prosthesis, a metal-ceramic prosthesis, or an overdenture secured to two or four implants. The final sample size was 100 patients with 300 implants and a mean age of 41 years. Statistical analysis had been carried out using SPSS software.

Results

Table 1: Gender-wise distribution of subjects.

Gender	Number of subjects
Males	50
Females	50
Total	100

Out of 100, 50 subjects were males and 50 were females. It was seen that out of 100 subjects, peri-implantitis was observed in 45 subjects. The study also found that peri-implantitis is significantly less common among nonsmokers (5 patients) than it is among smokers (21 patients who smoke less than 10 cigarettes daily and 11 patients who smoke more than 10 cigarettes daily). Alcohol consumption is another factor with statistically significant findings. Peri-implantitis is more significant in heavy smokers (7 patients) than in those who don't smoke at all (29 participants).

Discussion

Dental implants have become one of the most reliable therapeutic options to replace missing teeth. As a result, a significant increase in the number of dental implants placed annually, on the one hand, and in the number of cases diagnosed with peri-implantitis, on the other hand, has been observed worldwide [7,8]. The 2017 World Workshop on the Classification of Periodontal and Peri-Implant Diseases and Conditions defined peri-implantitis as a pathological condition occurring in the tissues surrounding dental implants characterized by signs of inflammation of the outer tissues and progressive bone loss [9-11]. A number of therapeutic approaches have been proposed for peri-implantitis management, including nonsurgical, surgical, and combined treatments. Most of the peri-implantitis treatments are also performed for periodontitis because of the common etiology, and the similarities in the pathophysiology of bacterial biofilm formation on both dental implant surfaces and dental tissues [12]. Hence, this study was conducted to assess the Incidence of Peri-Implantitis. In this study, out of 100, 50 subjects were males and 50 were females. It was seen that out of 100 subjects, peri-implantitis was observed in 45 subjects. The study also found that peri-implantitis is significantly less common among nonsmokers (5 patients) than it is among smokers (21 patients who smoke less than 10 cigarettes daily and 11 patients who smoke more than 10 cigarettes daily). Alcohol consumption is another factor with statistically significant findings. Peri-implantitis is more significant in heavy smokers (7 patients) than in those who don't smoke at all (29 participants). In partially dentate periodontal maintenance patients with dental implants, a positive association between periodontal and peri-implant conditions was found after 10 years. [13] Using multiple linear analyses, the authors determined that deeper mean full-mouth pocket depths and greater full-mouth attachment loss was associated around

implants. In our report, both patients had chronic periodontitis and there were increases in both parameters. According to Klokkevold et al, [14] a history of treated periodontitis does not appear to affect the implant survival rate as in our case, but it can negatively influence its success over a very long time. Renvert et al [15] also reported that a history of periodontitis could be a contributing factor for peri-implantitis but stressed that the data to support this conclusion was very robust. According to a systematic review by Zangrando et al, [16] implant prosthesis outcomes in periodontitis patients have satisfactory outcomes and high survival rates after 10 years of follow-up. However, several studies have stated that the severity of periodontitis appears to exert an effect on the rate of biological complications of dental implants. The data suggest lower implant survival, increased peri-implant bone loss and higher incidence of peri-implantitis. [17-19] Studies have also reported that implants placed in aggressive periodontitis cases have lower survival rates and increased bone loss as compared to chronic periodontitis cases. [20,21]

Conclusion

Our study's findings suggest that a higher lifetime exposure to tobacco products (more cigarettes smoked per day) is associated with an increased risk of getting peri-implantitis.

References

1. Simonis P, Dufour T, Tenenbaum H. Long-term implant survival and success: a 10-16-year follow-up of non-submerged dental implants. *Clin Oral Implants Res.* 2010;21:772-777.
2. Khammissa RAG, Feller L, Meyerov R, Lemmer J. Peri-implant mucositis and peri-implantitis: clinical and histopathological characteristics and treatment. *SADJ.* 2012;67(122):124-126.
3. Zitzmann NU, Walter C, Berglundh T. Ätiologie, Diagnostik und Therapie der Periimplantitis – eine Übersicht. *Deutsche Zahnärztliche Zeitschrift.* 2006;61:642-649.
4. Wilson V. An insight into peri-implantitis: a systematic literature review. *Prim Dent J.* 2013;2:69-73.
5. Schwarz F, Sahm N, Becker J. Aktuelle Aspekte zur Therapie periimplantärer Entzündungen. *Quintessenz.* 2008;59:00.
6. Derks J., Schaller D., Håkansson J., Wennström J.L., Tomasi C., Berglundh T. Effectiveness of implant therapy analyzed in a Swedish population: Prevalence of peri-implantitis. *J. Dent. Res.* 2016;95:43-49.
7. Derks J., Schaller D., Håkansson J., Wennström J.L., Tomasi C., Berglundh T. Effectiveness of implant

- therapy analyzed in a Swedish population: Prevalence of peri-implantitis. *J. Dent. Res.* 2016;95:43–49.
8. Lee C.T., Huang Y.W., Zhu L., Weltman R. Prevalences of peri-implantitis and peri-implant mucositis: Systematic review and meta-analysis. *J. Dent.* 2017;62:1–12.
 9. Tonetti M.S., Greenwell H., Kornman K.S. Staging and grading of periodontitis: Framework and proposal of a new classification and case definition. *J. Periodontol.* 2018;89:159–172.
 10. Di Spirito F., lo Giudice R., Amato M., di Palo M.P., D'Ambrosio F., Amato A., Martina S. Inflammatory, Reactive, and Hypersensitivity Lesions Potentially Due to Metal Nanoparticles from Dental Implants and Supported Restorations: An Umbrella Review. *Appl. Sci.* 2022;12:11208.
 11. Di Spirito F., Schiavo L., Pilone V., Lanza A., Sbordone L., D'Ambrosio F. Periodontal and Periimplant Diseases and Systemically Administered Statins: A Systematic Review. *Dent J.* 2021;9:100.
 12. Schwarz F., Giannobile W.V., Jung R.E. Groups of the 2nd Osteology Foundation Consensus Meeting. Evidence-based knowledge on the aesthetics and maintenance of peri-implant soft tissues: Osteology Foundation Consensus Report Part 2-Effects of hard tissue augmentation procedures on the maintenance of peri-implant tissues. *Clin. Oral Implant. Res.* 2018;29:11–13.
 13. Karoussis IK, Müller S, Salvi GE, Heitz-Mayfield LJ, Brägger U, Lang NP. Association between periodontal and peri-implant conditions: a 10-year prospective study. *Clin Oral Implants Res.* 2004;15:1–7.
 14. Klokkevold P R, Han T J. How do smoking, diabetes and periodontitis affect outcomes of implant treatment? *International Journal of Oral & Maxillofacial Implants.* 2007;22:173–2.
 15. Renvert S, Persson G R. Periodontitis as a potential risk factor for peri-implantitis. *Journal of Clinical Periodontology.* 2009;36:9–14.
 16. Zangrando MS1, Damante CA, Sant'Ana AC, Rubo de Rezende ML, Gregghi SL, Chambrone. Long-term evaluation of periodontal parameters and implant outcomes in periodontally compromised patients: a systematic review. *J Periodontol.* 2015 ;86:201-21.
 17. Gatti C, Gatti F, Chiapasco M, Esposito M. (2008) Outcome of dental implants in partially edentulous patients with and without a history of periodontitis: a 5-year interim analysis of a cohort study. *European Journal of Oral Implantology.* 2008;1:45–51.
 18. Rocuzzo M, Bonino L, Dalmaso P, Aglietta M. Long-term results of a three arms prospective cohort study on implants in periodontally compromised patients: 10-year data around sandblasted and acid-etched (SLA) surface. *Clinical Oral Implants Research.* 2014;25:1105–12.
 19. Levin L, Ofec R, Grossmann Grossmann, Y Y, Anner R. Periodontal disease as a risk for dental implant failure over time: a long-term historical cohort study. *Journal of Clinical Periodontology.* 2011;38:732–37.
 20. Mengel R, Flores-de-Jacoby L. Implants in patients treated for generalized aggressive and chronic periodontitis: a 3-year prospective longitudinal study. *Journal of Periodontology.* 2005;76:534–43.
 21. Mengel R, Kreuzer G, Lehmann KM, Floresde-Jacoby L. A telescopic crown concept for the restoration of partially edentulous patients with aggressive generalized periodontitis: a 3-year prospective longitudinal study. *The International Journal of Periodontics & Restorative Dentistry.* 2007;27:231–39.