CLINICAL AND RADIOGRAPHIC STUDY REGARDING THE PERI IMPLANT STATUS OF IMPLANTO-PROTETIC REACTIVATED PATIENTS

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ABSTRACT

Aim of the study. The study aimed to determine the prevalence and the evolution stage of the peri-implantitis to patients with implant-prosthetic rehabilitations in relation to demographic and individual factors. **Materials and methods**. The study group included 51 patients (210 dental implants) with implant-prosthetic restorations (loading age 12-48 months). The clinical exam and radiographic exam were used to assess the periodontal and peri-implant status. Where in doubt regarding the evolution stage of the peri-implantitis, CT exam was performed. **Results.** The prevalence of peri-implantitis was 83%, with 10% incipient peri-implantitis, 5,7% moderate peri-implantitis and 1,4% severe peri-implantitis **Conclusion**. The prevalence of peri-implantitis has a high level for patients that avoid regular check-ups and professional cleaning. Some factors (moderate periodontitis, smoker status, age group 40-49) sustain the increase of the peri-implantitis prevalence.

Key words: peri-implantitis, detection, prevalence

INTRODUCTION

Dental implants have become a common solution in oral rehabilitation treatment, so prevention, identification and treatment of peri-implantitis treatment became a daily routine work for the specialists in oral implantology. Due to the high percentage of patients that request and receive implant-prosthetic rehabilitation, it is reasonable to assume a progressive increase of the peri-implantitis prevalence [1]. Dental implant is affected by biological complications, oral biofilm and peri-implant tissues inflammation stressing the epithelial tissue as well as the connective peri-implant tissue and supporting bone [2].

AIM OF STUDY

The study aimed to determine the prevalence and the evolution stage of the peri-implantitis to patients with implant-prosthetic rehabilitations in relation to demographic and individual factors.

MATERIALS AND METHOD

The study group included 51 patients (210 dental implants) with implant-prosthetic restorations (loading age 12-48 months). The informed consent was obtained from all patients. Inclusion criteria are as follows:

- absence of significant systemic disease that can influence the longevity of the implants (diabetes, metabolic diseases);
- age between 40-70
- patients avoiding regular check-ups and professional cleaning.

The clinical exam and radiographic exam were used to assess the periodontal and peri-implant status.

Where in doubt regarding the evolution stage of the peri-implantitis, CT exam was performed.

Peri-implantitis was diagnosed in relation to the next parameters:

-bleeding on probing;

-depth probing >4mm;

-radiographic resorption:
< 2mm- incipient peri-implantitis;
2-4mm- moderate peri-implantitis;
>4mm- severe peri-implantitis.

RESULTS

The figures 1-3 show the radiographic aspects in different stages of peri-implantitis (incipient, moderate, severe).

Figure 1. Incipient peri-implantitis 2.2.

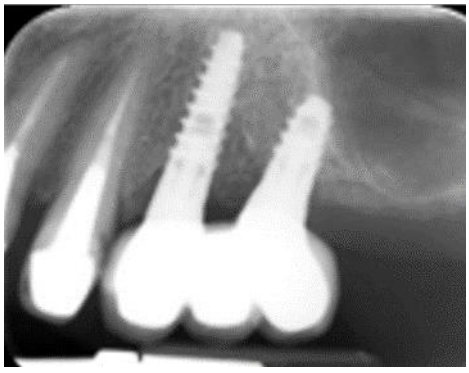

Figure 2. Moderate peri-implantitis 1.4.

Figure 3. Severe peri-implantitis 1.4.

The results regarding the prevalence of peri-implantitis in relation to the investigated factors are presented in the figures 4-10.

The prevalence of peri-implantitis was 83%, with 10% incipient peri-implantitis, 5,7% moderate peri-implantitis and 1,4% severe peri-implantitis (figures 4-5).

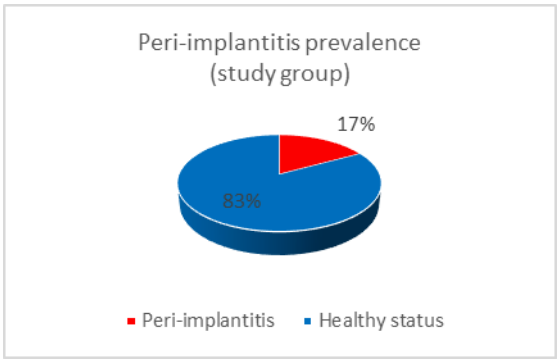

Figure 4. Peri-implantitis prevalence (study group)

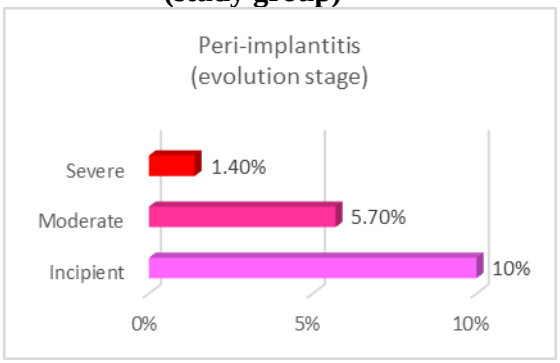

Figure 5. Peri-implantitis distribution (evolution stage)

The prevalence of peri-implantitis in relation to demographic factors was as follows (figures 6-7): 20% males, 14% females; 33% on patients with age between 40-49, 14% on patients with age between 50-59, 15% on patients with age between 60-70.

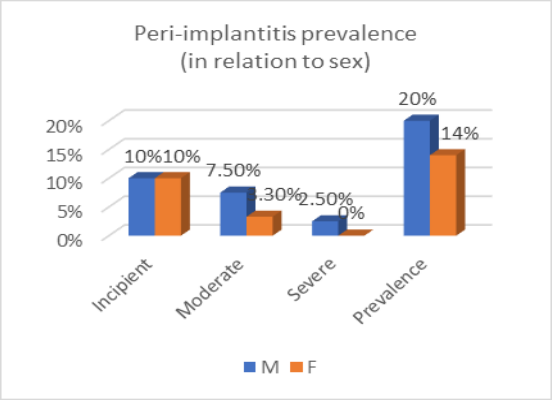

Figure 6. Peri-implantitis prevalence and distribution (sex)

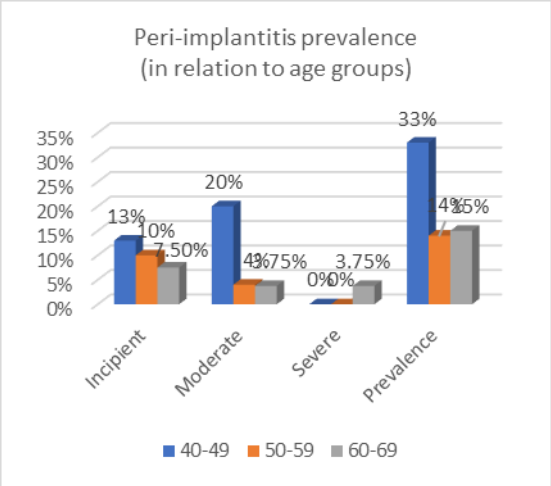

Figure 7. Peri-implantitis prevalence and distribution (age groups)

The prevalence of peri-implantitis in relation to localisation was 24% on maxillary arcade and 11% on mandibular arcade (figure 8).

The prevalence of peri-implantitis in relation to periodontal status was 0% for non-affected patients, 14% for patients with incipient periodontal disease, and 21% for patients with moderate periodontal disease (figure 9).

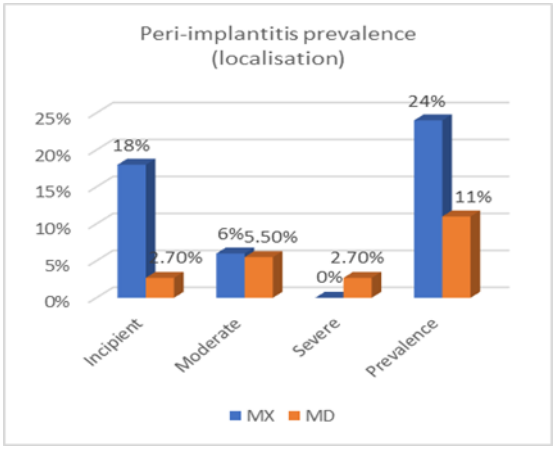

Figure 8. Peri-implantitis prevalence and distribution (localisation)

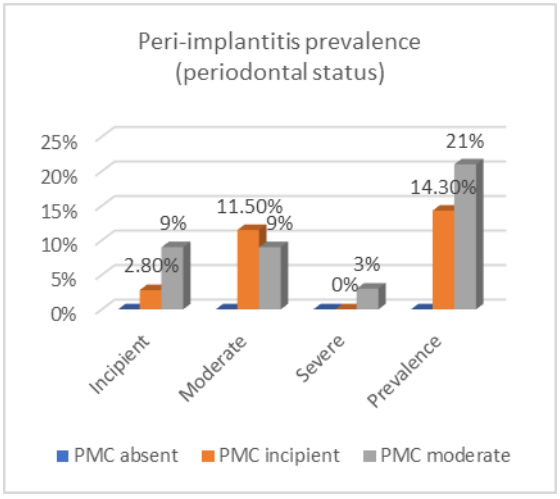

Figure 9. Peri-implantitis prevalence and distribution (periodontal status)

The prevalence of peri-implantitis in relation to smoker/non-smoker status was 21% for smokers and 17% for non-smokers (figure 10).

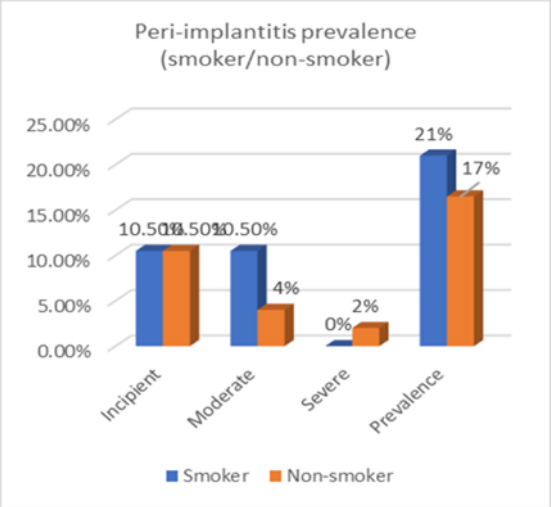

Figure 10. Peri-implantitis prevalence and distribution (smokers/non-smokers)

DISCUSSIONS

The literature data show the predictability of implant-prosthetic rehabilitations as a review determined 97.7% success rate of dental implants at 5 years and 92.8% success rate of dental implants at 10 years [3]. However, especially for patients without inclusion in regular monitoring and professional cleaning sessions the rate of peri-implantitis increases. The criteria that we used to detect peri-implantitis were related to the definition established by Seventh European Workshop on Periodontology (2011) as follows: mucositis, when there is bleeding present at light exploratory probing and peri-implantitis, when the bleeding is associated

with alveolar bone loss, with or without increasing peri-implant sulcus depth and suppuration is present [4, 6,15,].

Peri-implantar biological complications are determined by the inflammatory response of the tissue caused by bacteria that colonize the surface of the implant forming a biofilm and it occurs when the balance between bacterial load and host defense tilts in favor of bacteria [5]. In relation to several factors, the peri-implant tissue response to bacterial aggression looks like the one in natural tooth periodontium and is limited to soft tissue or can be expanded by including crestal bone resorption process [16,17].

Our results sustain the literature data for patients that don't undergone monitorization and regular professional cleaning. Our data confirmed the influence of periodontal status and smoker status in relation to the increase of peri-implantitis prevalence. Males have higher prevalence explained by the lower level of hygiene. Also, higher rates of prevalence were detected on maxillary implants comparing with mandibular implants due probably to the lower maxillary bone volume when patients were not programmed to regenerative bone procedures.

The results of this study show the necessity of the periodic checks that will give the opportunity to identify early stage of peri-implantitis and will allow to apply the preventive and curative methods since early stage of peri-implantitis [7-11]. These measures will maximise the dental implant lifetime. This is especially important because despite the structures anchored on dental implants share similarities with natural dentition, such as biofilm and pathogenic factors acting at this level, periodontal treatment methods can be applied only partially, requiring a specific management of peri-implantar damage

The limits of such studies are because a precise prevalence rate of peri-implantar damage is difficult to estimate due to numerous factors such as lack of standardization for each peri-implantar site as well as the different limits of bone resorption parameters taken in consideration as clinical diagnosis factors [12,13,14].

CONCLUSIONS

The prevalence of peri-implantitis has a high level for patients that avoid regular check-ups and professional cleaning. Some factors (moderate periodontitis, smoker status, age group 40-49) sustain the increase of the peri-implantitis prevalence.

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