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STUDY REGARDING THE PERIODONTAL STATUS OF THE PATIENTS WITH IMPLANT-PROSTHETIC REHABILITATION

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Abstract.

Aim of study. The aim of study was to assess the periodontal status of the edentulous patients with implant-prosthetic restorations. **Materials and method**. The study group included 20 patients (14 males, 6 females), aged 22-59 years (mean age 46,8), with implant-prosthetic rehabilitation performed 3-5 years ago. All patients were selected from those that did not attend bacterial plaque control sessions in the last 6 months. The periodontal status was assessed following anamnesis, clinical exam (indices: BOP, Silness-Loe, PPD, CAL, PDI), radiographic exam (type and extension of the marginal alveolar lysis). Albandar criteria were used to classify patients according to the periodontal disease stages. **Results.** Most of the implant-prosthetic rehabilitated patients that did not attended to control periodontal and periimplant sessions in the last 6 months present bacterial plaque (PI 0,35) levels and at least one periodontal site with bleeding on probing (70%). All patients were diagnosed with generalised chronic marginal periodontal disease (30% early, 50% moderate, 20% severe). **Conclusions.** The study highlights the relation between periodontal status and the low compliance of the patients to bacterial plaque control sessions and confirms the need for effective education and motivation of the patients with implant-prosthetic restorations.

Key words: *periodontal status, periodontal indices, implant-prosthetic therapy*

Introduction

The periodontal disease is one of th emost important risk factors that can hinder the success of the implant-prosthetic therapy [1]. One study reported 2,2 risk increase for the periimplantitis onset for edentulous patients with periodontal disease comparing with periodontal healthy patients [2]. 28% from implant-prosthetic rehabilitated patients with periodontal disease have periimplantitis 10 years psottreatment comparing with only 5% from periodontal healthy patients [3]. These data are explained by anatomical, morphological, and bacterial factors due to similar structure of the marginal periodontal tissues with periimplant tissues and to the possibilities of periimplant sulcus to be colonised by pathogenical periodontal bacteria [4]. The relation between periodontal disease and periimplantitis is highlighted by the similar pathology, as mucositis has many features of gingivitis and periimplantitis has a similar evolution to periodontal disease [5].

The monitorisation and recording of the periodontal indices and active periodontal sites help the dentists to ensure an effective maintaining periodontal therapy and to motivate the patients to apply effective oral hygiene measures [6]. The

detection of the mucositis and periimplantitis after the end of the implant-prosthetic therapy will ensure the long-term success of the implant-prosthetic therapy [7].

The aim of study

The aim of study was to assess the periodontal status of the edentulous patients with implant-prosthetic restorations.

Materials and method

The study group included 20 implant-prosthetic rehabilitated patients (14 males, 6 females), aged 22-59 years (mean age 46,8). Most of the patients (70%) were non-smokers. The inclusion criteria were as follows: implant-prosthetic therapy performed 3-5 years ago; patients did not attend periodontal and periimplant control sessions in the last 6 months.

Data regarding the patients age are presented in figure 1.a. Data regarding the edentation features are presented in the figures 1.b (edentation localization and classification), 1.c (number of absent teeth). The periodontal status was assessed following the next stages:

- Anamnesis (periodontal disease hystory ; smoker/non-smoker status);
- Clinical examen – clinical signs and symptoms were recorded on periodontal chart of Periodontology Discipline, Faculty of Dental Medicine, U.M.F. "Grigore T.Popa" Iasi (Mârţu S.&col., 2014):
  -gingival inflammation (BOP index) ;
  -oral hygiene status (Silness-Loe index) ;
  -periodontal pockets detection and periodontal pockets depth measurements (PPD) using Hu Friedy periodontal probe;
  -clinical attachment level (CAL index);
  -measurement of PDI index (Ramfjord teeth).
- Radiographic ex. (ortopantomography) - type and extension of the marginal alveolar lysis.

Albandar criteria were used to classify patients according to the periodontal disease stages [8]:

- Severe periodontitis- at least 2 teeth with periodontal pockets ≥5mm, or at least 4 teeth with periodontal pockets ≥4mm;
- Moderate periodontitis- at least 1 tooth with with periodontal pockets ≥5mm, or at least 2 teeth with periodontal pockets ≥4mm;
- Early periodontitis- at least 1 tooth with depth probing ≥3mm, or a posterior tooth with interradicular lesion grade I.

Data were recorded and processed using Microsoft Excel.

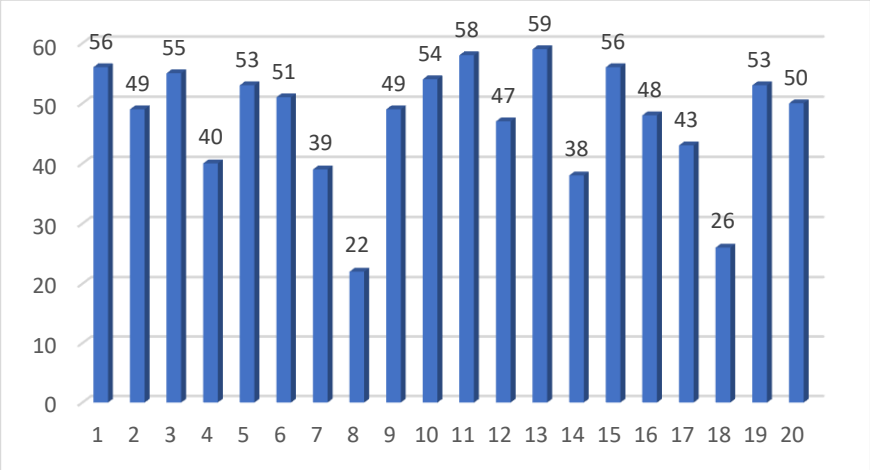

Fig. 1.a. Distribution of patients age

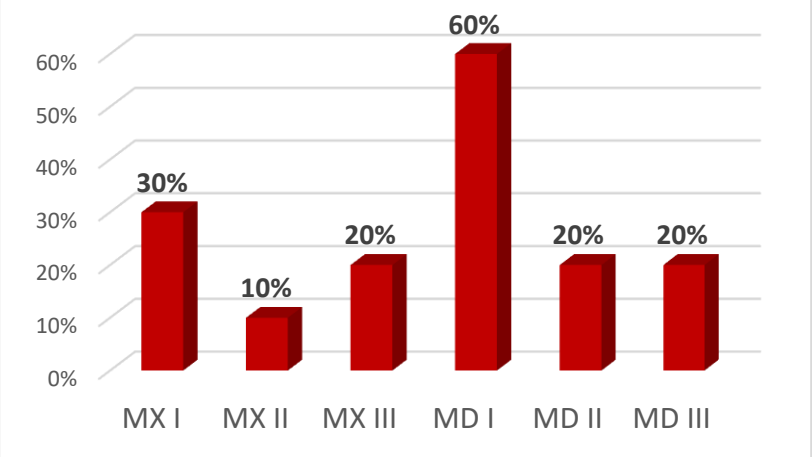

Fig. 1.b. Edentation features (localization, Kennedy classification)

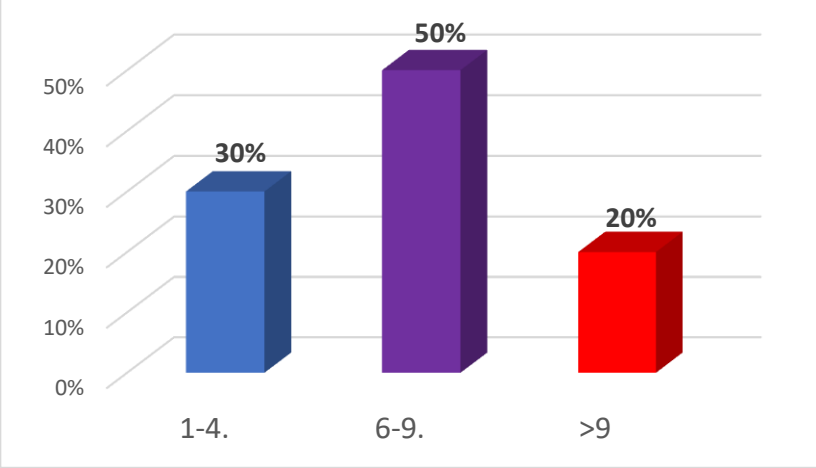

Fig. 1.c. Distribution of patients related to the number of absent teeth

Results

The clinical and radiographical aspects from a patient (D.I., age 48) in the study group are presented in figures 2.a-b.

Fig.2.a. D.I., age 48. severe periodontitis. Class IV Kennedy maxillary and Class I Kennedy mandibular edentation

Fig. 2.b. Preoperatory radiographic aspect

The status of patients related to the implant-prosthetic features is presented in figures 3.a-c.

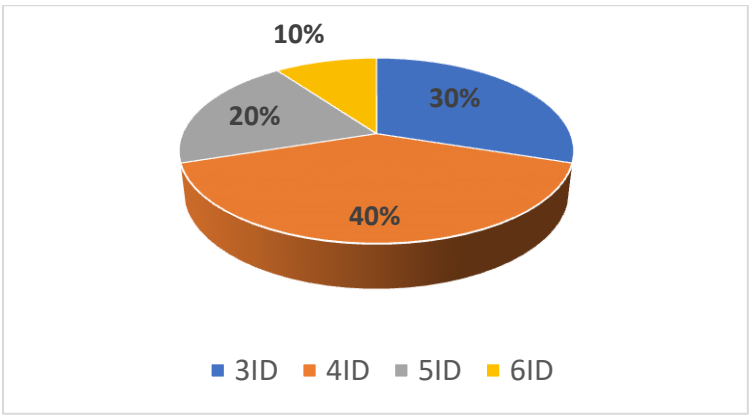

Fig. 3.a. Patients distribution related to implants number

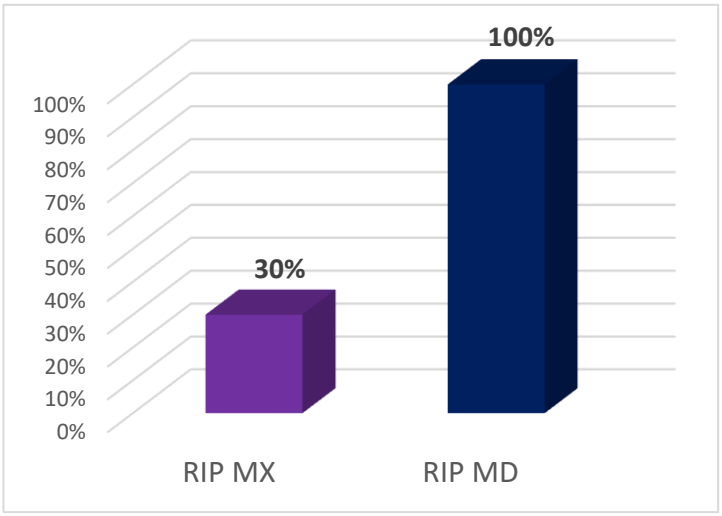

Fig.3.b. Patients distribution related to localization of the implant-prosthetic restorations

The results regarding the periodontal status fo the patients included in study are presented in table I and figure 4.

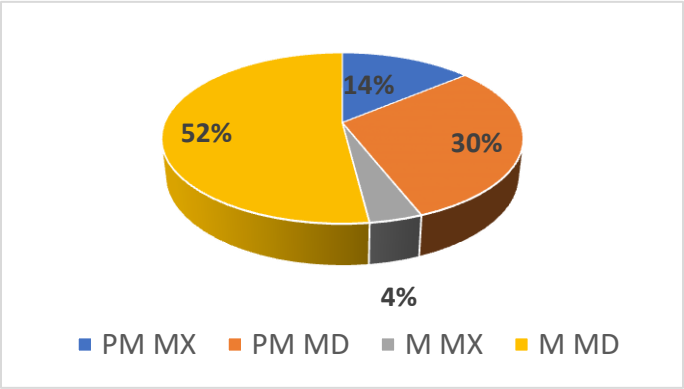

Fig.3.c. Patients distribution related to localization of the replaced teeth

Table I. Clinical and radiographical periodontal features

PI	% (patients)	70%
	Mean	0,35
BOP	% (patients)	70%
	% (sites)	31%
CAL	Mean	3,1 mm
PD	PD<4mm (%)	85%
	PD>4mm (%)	15%
	Mean	2,8 mm
PDI	Mean	4,5
Rx alv.lizis	< 1/3	30%
	1/3-1/2	70%
	>1/2	0%

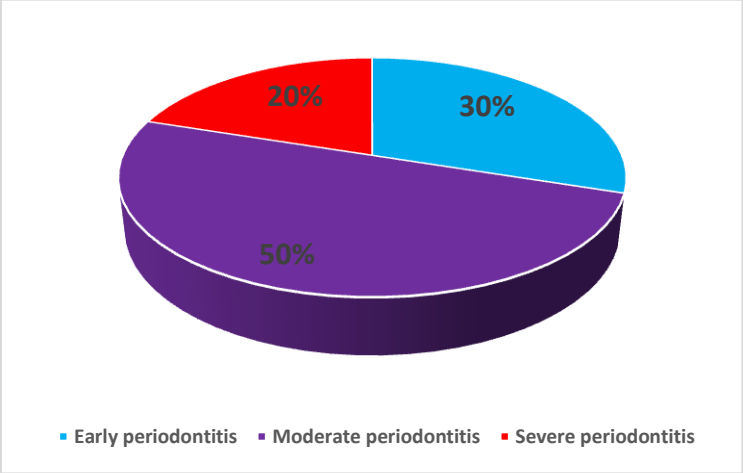

Fig.4. Patients distribution related to the stage of periodontal disease

Data related to the periodontal status of the implant-prosthetic rehabilitated patients are as follows:

- Bacterial plaque and BOP were detected to 70% of the examined patients (PI 0,35);
- Mean CAL value was 3,1 mm;
- Mean PPD was 2,80 mm; 15% of the examined sites have PPD>4 mm ;
- Mean PDI was 4,5 ;
- Horisontal alveolar lysis under 1/3 of root length was detected to 30% of the investigated patients, and between 1/3 and ½ of root length to 70% of the investigated patients
- The classification of patients related to the stage of the periodontal disease (Albandar criteria) was as follows: 30% of patients have early marginal chronic periodontitis, 50% of patients have moderate marginal chronic periodontitis, 20% of patients have severe marginal chronic periodontitis.

Discussions

Our study found clinical periodontal indices indicating active periodontal disease for 70% of patients that did not attend control plaque sessions in the last 6 months. Regarding the stage of the chronic marginal periodontitis, 20% of these patients were diagnosed with severe marginal chronic periodontal disease, and 50% with moderate marginal chronic disease. Also 15% of these patients had periodontal sites with periodontal pockets depth higher than 4 mm. These results confirm literature data regarding the prevalence of periodontal pockets in the Europe East countries [9]. These data are significantly higher comparing with epidemiological studies in USA [10] or in Europe [11].

The periodontal indices selected in our study are relevant for the case definition of the periodontal disease [12]. A direct correlation was found between PI, BOP, PPD and implants failure rate due to periimplantitis [13]. The dental implants survival rate is lower for patients with periodontal disease than healthy periodontal patients [14,15].

These data must warn about the patients receiving implant-prosthetic in Romania, as the periodontal disease history and the presence of periodontal pockets are risk indicators increasing the probability for periimplantitis onset [16]. Three reviews found that the long-term success rate of the implant-prosthetic therapy is significantly higher for patients without active periodontal disease, comparing with patients with history of periodontal treatment [17-19]. The dental implants survival rates are between 91,67%-100% for healthy periodontal patients and 79,22%-100% for patients with periodontal disease history [20]. The risk of the periimplantitis onset is 2,21 higher for patients affected by periodontal disease in preimplant stage comparing with periodontally compromised patients, while patients with aggressive periodontal disease have 4,04 higher risk [21].

The implant-prosthetic therapy has widespread worldwide due to numerous biological, functional and esthetic advantages [22, 23].

At the same time, the epidemiological studies highlight the increased prevalence of the periodontal disease [24]. The dentists must control the risk factors that can conduct to the acceleration of the periodontal disease evolution, as the relation risk factors/risk predictors defines a risk concept in a continuous dynamic [25].

Most of the implant-prosthetic rehabilitated patients that did not attended to control periodontal and periimplant sessions in the last 6 months present bacterial plaque (PI 0,35) levels and at least one periodontal site with bleeding on probing (70%). All investigate patients were diagnosed with generalised chronic marginal periodontal disease (30% early, 50% moderate, 20% severe).

Conclusions

The study highlights the relation between periodontal status and the low compliance of the patients to bacterial plaque control sessions and confirms the need for effective education and motivation of the implant-prosthetic rehabilitated patients.

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