Abstract

The aim of the study was to establish whether elimination of periodontal infection may impact on the systemic diseases in patients at risk to be affected by a cardiovascular disease. At the same time, the systemic effects of the treatment of severe periodontites were assessed, by examining the modifications caused by the treatment upon the markers of inflammation, which are actually involved in atherosclerotic cardiovascular diseases, as well. Materials and method: The study included a group of 94 patients with generalized severe periodontitis, in whom the periodontal modifications were followed up for 6 months from the beginning of the non-surgical periodontal treatment. The serological and clinical periodontal parameters were evaluated in the beginning of the study and then for 2 and, respectively, 6 months after the initiation of the non-surgical treatment. Results and Discussion: The study analyzes the effects of non-surgical periodontal therapy upon the inflammation markers. It was demonstrated that a proper management of the periodontal infections reduces the markers of inflammation within a small segment of a population affected by severe and acute forms of periodontal diseases. Periodical stomatological control might prevent the occurrence and evolution of a periodontal pathology systemically influenced by the administration of drug therapy in cardiovascular diseases. Conclusions. The data obtained within the limited research of the present study demonstrate the inter-relation between general health condition and the periodontal disease.

Keywords: cardiovascular maladies, drug treatment, non-specific treatment, periodontal disease

INTRODUCTION

The large number of epidemiological investigations developed in recent years has shown that the subjects affected by periodontites are more exposed to cardiovascular diseases (1-3). Nevertheless, the periodontic-cardiovascular disease association remains under debate, the discussions being focused on the contradictory results attained by different investigators, who analyzed similar materials (4, 5). Critical opinions outlined the common factors of risk of both periodontitis and atherosclerosis, but asserted that such a recognized association may be, in many situations, false (6, 7). Consequently, the nature of the causality relation here involved still remains to be elucidated, representing an important aspect in dealing with the periodontal diseases (8).

Two hypotheses were put forward on the etiological mechanisms referring to the association of periodontitis with systemic inflammations and cardiovascular diseases, namely:

1. periodontites represent sources of chronic infection for the organism, permitting the access of microorganisms and endotoxines; an affected periodontium is a source for the occurrence of systemic mediators of inflammation.

2. the periodontal and coronarian diseases have common factors of risk, such as smoking, DZ, and low socio-economic status. However, which is the connection among them? The investigators who first viewed Chlamydia pneumoniae as a risk factor for IM identified the connexion between the periodontal disease and the coronarian malady (9), possibly the interaction between the bacterial products and various hemostasic mechanisms.

Epidemiological investigations show that most of the persons suffering from cardiovascu-
lar diseases will be also affected by aggressive periodontal diseases or even by edentations \((3, 8)\).

A preliminary analysis of the inter-relation between medical and dental health, performed by Löesche, as cited by Armitage, suggests a possible association between edentation and the cardiovascular diseases; however, this might be only a coincidence, reflecting a careless life style, which favourizes both heart and dental diseases \((5)\).

It is also possible that the edentations and the chronic and aggressive periodontal affections should represent additional risk factors for various heart maladies, thus predisposing the patient to a low exposure to chronic infection \((6, 9)\).

The aim of the present study is to establish whether elimination of the periodontal infection may have some impact upon the systemic affection in the patients exposed to cardiovascular diseases.

**MATERIALS AND METHOD**

The investigations were carried out on a group of 94 patients suffering from severe generalized periodontitis, in whom the periodontal modifications were followed for 6 months from the initiation of the non-surgical periodontal treatment.

The serological and clinical periodontal parameters were evaluated in the beginning of the study, then 2 and 6 months after initiation of the non-surgical treatment.

The patients were selected from the persons having come to the Clinics of Periodontology of the Faculty of Medical Dentistry, UMF Iași, for various periodontal treatments. The criteria for being included in the study considered the presence of a generalized periodontal disease, without any other systemic signs of infection (tab. 1).

It was assumed that the subjects had periodontal pockets larger than 6 mm and marginal bone loss exceeding 30%, in at least 50% of the teeth.

Each of the 3 examinations (initial, after 2 and, respectively, 6 months) included:

- measurement of the periodontal pockets,
- measurement of recessions (from the free gingival margin to the enamel-cement junction)
- recording of bleeding at probing, in 6 sites of each tooth.

The score of bacterial plaque expresses percentually the surfaces completely covered by plaque.

**RESULTS AND DISCUSSION**

The patients were subjected to a non-surgical treatment. Oral hygiene procedures, scaling and subgingival levelling (DS) were applied, under local anaesthesia, with an ultrasonic instrument.

The therapy was limited neither in time nor by the number of interventions, the treatment being completed within 1-3 months from the first examination.

The periodontal treatment was completed by the extraction of the compromised teeth and also by restorative and endodontic treatments.

94 of the subjects agreed on the treatment and followed it up to the end of the study. The average age was of 46±9 years, 54% were women, 42% were chronic smokers and 26% had cardiovascular diseases in their family history;

75% of the patients had chronic periodontites, and 25% had suffered from aggressive forms of generalized periodontitis (fig. 1).
Recording of the clinical periodontal parameters evidences the severity and extension of the periodontal infection.

The first examination demonstrated an average plaque index of 58±20.7% and 63.5±16.4% bleeding-at-probe zones in the patients; the mean number of deep periodontal pockets was of 77±23, loss of attachment 4.93±1.13 mm, and 4.36±0.59 mm deep pockets (tab. 2).

Table 2

<table>
<thead>
<tr>
<th></th>
<th>Initially</th>
<th>At 2 months</th>
<th>At 6 months</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Average</td>
<td>Standard deviation</td>
<td>Average</td>
</tr>
<tr>
<td>Plaque index</td>
<td>58.04</td>
<td>20.70</td>
<td>20.90</td>
</tr>
<tr>
<td>Bleeding index</td>
<td>63.57</td>
<td>16.39</td>
<td>15.80</td>
</tr>
<tr>
<td>Nr. pockets &gt;4mm</td>
<td>77.08</td>
<td>23.23</td>
<td>27.82</td>
</tr>
<tr>
<td>Depth of pockets</td>
<td>4.36</td>
<td>0.59</td>
<td>3.25</td>
</tr>
<tr>
<td>Recession (mm)</td>
<td>0.56</td>
<td>0.88</td>
<td>1.56</td>
</tr>
<tr>
<td>Loss of attachment (mm)</td>
<td>4.93</td>
<td>1.13</td>
<td>4.74</td>
</tr>
</tbody>
</table>

Oral hygiene was significantly improved, the plaque index being, on the average, of 20% between 2 and 6 months (fig. 2).

The bleeding indices recorded average values of 16% at 2 months, and of 17%, respectively, at 6 months (fig. 3).

A decrease in the number of periodontal pockets, from 77±23 in the first session, up to 28±16 at 2 months and 23±15, respectively, at 6 months, was registered. (fig. 4)
The depth of the pockets decreased from about 4.36 mm in the first session, to 3.25 mm at 2 months and 3.19 mm, respectively, at 6 months. (fig. 5)

The recessions stopped and the loss of attachment decreased from 4.93 mm to 4.74 at 2 months, and to 4.85 mm, respectively, at 6 months. (figs. 6, 7).

The results of the study put into evidence a significant association between a precarious periodontal health condition and the coronary disease, as far as the periodontal indices are involved.

The average age in the 3 groups is of 42 years. The mean number of teeth is approximately 27, generalized periodontitis affecting 14.8 teeth with bone loss, while local periodontitis occurs in 3.5 teeth.

No significant variations were registered as to sex and hypertension antecedents.

More than that, the obtained results show that severe generalized periodontitis cause systemic inflammation, which might support the idea that periodontitis may cause aterogenesis (9, 10).

CONCLUSIONS

The study discusses the effects of non-surgical periodontal therapy upon the markers of inflammation. It has been demonstrated that a proper management of the periodontal infections reduces the markers of inflammation within a small segment of a population affected by severe and acute forms of periodontal diseases.

The data obtained within the limited background of the present study demonstrate the inter-relation between general health condition and the periodontal disease.

References

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