ETIOPATHOGENIC INTERRELATIONS BETWEEN PERIODONTAL DISEASE AND RHEUMATOID ARTHRITIS

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Abstract

Purpose: To determine a possible relationship between periodontal disease and rheumatoid arthritis. Method: The prevalence of periodontal disease and rheumatoid arthritis was evaluated on 108 patients, divided into 3 groups: one with 40 patients affected with periodontal disease, a second one with 32 patients without periodontal disease, and a third one, including 36 patients with rheumatoid disease. Results: Clinical and radiographic evaluation revealed that the patients with periodontal disease showed a higher percentage of rheumatic disease than those without periodontal disease (5.16% vs 2.34%). Conclusions: People with moderate to severe periodontal disease have a higher risk of being affected with rheumatoid arthritis and vice versa.

Keywords: periodontal disease, rheumatoid arthritis

1. INTRODUCTION

Periodontitis and rheumatoid arthritis are two relatively common inflammatory diseases that affect large population segments. Recent studies have attempted at evidencing an ethiopathogenic relation between the two diseases [1,2]. Researches started from the fact that the diseases have similar inflammatory pattern, affecting the same type of tissue, and also that both have a microbial etiology. Therefore, the assumption may be made that a patient with rheumatic disease may have an accelerated pattern of appearance and development of periodontal disease, or that the periodontal disease can induce the rheumatic one [3-5].

2. AIM OF STUDY

To evaluate whether patients with clinical periodontal disease frequently show rheumatic disease, as well as to investigate whether patients with rheumatic disease show a more severe or accelerated periodontal destruction pattern.

3. MATERIALS AND METHOD

The 108 patients considered for the study were divided, according to their pathology, into three groups, as follows: a first group formed of 40 patients with periodontal disease, the second one with 32 patients without periodontal disease, and the last one with 36 patients with rheumatoid disease.

Subjects were recruited from the Department of Periodontology and the Rheumatology Clinic of the UMPh Iasi.

Evaluation of patients was meant at evidencing the form of the disease by analysis of the inflammatory signs - bleeding gums and other characteristics of the periodontal support. All radiographic evaluations were compared only with the attachment level.

To be included in the group of patients with rheumatic disease, the subjects must provide, according to medical history, the presence of this pathology for at least one year.

Following data collection and analysis, test t was used to determine differences in the prevalence of periodontitis and rheumatoid arthritis.

4. RESULTS AND DISCUSSION

The results of the clinical and radiographic evaluation revealed that the patients with
periodontal disease showed a higher percentage of rheumatic disease than those without periodontal disease (5.16% vs 2.34%). The percentage values are not numerically significant, yet they may represent an important landmark in understanding periodontal disease involvement in the evolution of rheumatic pathology. (fig. 1)

Radiographic examination of the subjects with rheumatoid arthritis showed a moderate to severe alveolar bone loss in 61% of cases. 39% of the patients presented no signs or incipient evidence of bone loss. (fig. 2)

In the group of patients with periodontal disease, 5.16% of them suffered from rheumatoid arthritis, of which 62.5% had moderate or severe forms of periodontal disease. (figs. 3, 4)

A comparison between the groups of periodontally-healthy patients without rheumatic diseases and that of subjects with rheumatic diseases showed that the rate of bleeding index was higher in the second group (27.89% in the control group and 43.27% in the group with rheumatic diseases).

The same observation was valid for the gingival index (32% in the control group and 46.32% in the group with rheumatic diseases).

The comparison among the periodontally-healthy patients, those without rheumatic diseases, and the ones with rheumatic diseases showed that the rate of bleeding index was higher in the second group (27.89% in the control vs 43.27% in the group with rheumatic diseases), the same tendency being registered for the gingival index (32% in the control group vs 46.32% in the group with rheumatic diseases).

Out of the patients with periodontal disease, only those with moderate or severe forms had rheumatic disease, as well. (fig. 5)
5. DISCUSSION

It is generally accepted that the human populations with advanced periodontitis prevalence vary between 5-15% (American Academy of Periodontology, 1996). The present study reports that the prevalence of moderate to severe periodontitis is significantly higher in people suffering from rheumatoid arthritis.

Note that 3.9% of the patients with periodontal disease considered in the present study are reported with rheumatoid arthritis.

Additionally, it was observed that 62.5% of the patients with rheumatoid arthritis suffered from severe forms of periodontal destruction, which supports the hypothesis of a higher prevalence of rheumatoid arthritis only among individuals referred for periodontal treatment; however, people with rheumatoid arthritis showed a higher prevalence of advanced forms of periodontal disease.

Since a possible relationship between rheumatoid arthritis and moderate to severe periodontitis has been identified, one may assume that part of these patients have an disability or disorder unidentified by common pathological mechanisms, operating in these two chronic inflammatory diseases.

The data seem compelling to indicate that a relationship exists between the extent and severity of periodontal disease and RA [6-8]. While this relationship is unlikely to be causal, it is clear that individuals suffering from advanced RA are more likely to experience more significant periodontal problems, compared to their non-RA counterparts. The possibility that a general and underlying deregulation of the host inflammatory response is present in both conditions seems very likely [9]. Rheumatoid arthritis and periodontitis have a remarkably similar pathobiology. The study highlights the potential relationship between two of the most common and debilitating chronic inflammatory conditions, that affects people and calls for detailed future investigations.

6. CONCLUSIONS

In conclusion, while all systemic and periodontal diseases need further investigation, the available data are becoming more compelling to indicate a significant relationship between periodontal diseases in the context of systemic health.

References

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