PSYCHOLOGICAL STRESS AND PERIODONTAL DISEASE

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ABSTRACT

The aim of the study was to investigate the relationship between psychological stress and periodontal disease. The study was carried out on 496 patients aged 17-64 years from January 2007 to December 2008 at the Department of Periodontics, College of Dentistry, Qazvin University of Medical Sciences, Qazvin, Iran.

All the patients included in the study were suffering from psychological stress and were referred to us by medical specialists, and they also showed clinical features of periodontal disease. Patients suffering from acute severe pain or system diseases were excluded.

Periodontal examinations were carried out using standard protocol. It was followed by Clinical Attachment Loss (CAL) determination as a basis for evaluation of periodontal status. Later psychosocial factors were evaluated using internationally recommended questionnaires. The data were analysed using chi square test with p < 0.05 defined as level of significance.

Among the psychosocial factors identified in this study were anxiety, depression and chronic stress and methods to adapt stress were shown to have a significant relationship with CAL. The patients having severe Clinical Attachment Loss (CAL) were found suffering from severe anxiety and they used more emotional focused coping methods frequently, Those with lower CAL used problem focused coping methods frequently.

The results of this study showed that the continuous financial strains, depression, inadequate coping ability and maladaptive trait dispositions were significant risk factors for periodontal attachment loss.

Key words: Psychosocial factors, stress, anxiety, periodontal disease, clinical attachment loss

INTRODUCTION

Periodontal disease is defined as an inflammatory process of the gingival tissues, resulting in deep gingival sulci, and possibly producing periodontal pockets and supporting alveolar bone loss. Several risk factors broadly known include, but not limited to, oral hygiene, smoking, advancing age and systemic diseases involved. The relationship between psychosocial stress and periodontal disease has also been emphasized. Psychosocial stress is described as particularly tense behavioral and emotional life events. Studies have demonstrated that individuals under psychological stress are more likely to develop clinical attachment loss and loss of alveolar bone.

During recent years, various epidemiological studies carried out in various countries revealed that periodontal diseases in different societies have a different prevalence. For many years dental research scholars were searching the factors responsible for severe periodontal attachment loss which occurs even

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in some very clean mouths, where infection possibly could not have been the initiating factors. This study was an effort to investigate whether stress and anxiety of modern life could be the causative factor.

**METHODOLOGY**

This was an inter disciplinary, cross-sectional prospective study, which was carried out in the Department of Periodontics at Qazvin College/Hospital of Dentistry, Qazvin (Located at a distance of 140 km from Teheran – Iran).

There were 496 patients in age range of 15-65 years. 176 were males and 320 females. Most of them were referred from medical specialists. All the patients had periodontal as well as psychological stress problems. Those patients who were suffering from severe pain or other medical ailments were excluded from the study. For recording psychological stress a questionnaire comprising 90 questions used by “Psychiatric University Hospital Zurish” was used. It is called Symptom check list — SCL 90). These were used to assess chronic stress. Questionnaires were distributed among patients who were asked to fill these and they were collected 3 days later. The responses were scored and analyzed together with the data received from periodontal charts. Standard protocol was used for periodontal examination and for calculating clinical attachment loss — (CAL)

CAL was classified in the following groups;

<table>
<thead>
<tr>
<th>CAL</th>
<th>Normal</th>
<th>Slight</th>
<th>Moderate</th>
<th>Severe</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1mm</td>
<td>14 patients</td>
<td>42 (23.9%)</td>
<td>72 (40.9%)</td>
<td>48 (27.3%)</td>
</tr>
<tr>
<td>1.5m</td>
<td>32 (10.6%)</td>
<td>104 (32.5%)</td>
<td>140 (43.8%)</td>
<td>44 (13.8%)</td>
</tr>
<tr>
<td>3.4m</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>5 mm</td>
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</tbody>
</table>

**RESULTS**

Out of 496 patients referred to department of periodontics, 320 were females and 176 males. Table-1 illustrate the relative frequency distribution of demographic characteristics of subjects under study. When the patients ‘psychological data were collected and classified based on degree of clinical attachment loss, the correlation of psychological factors with severity of clinical attachment loss was evaluated (Fig 1). Amongst evaluated psychological factors, anxiety, depression, emotional focused coping behavior and chronic stress were revealed to have a significant relationship with attachment loss (p<0.05).

The patients who suffered from severe attachment loss used emotional focused coping behavior more frequently when facing stressful situation. On the other hand, the group with attachment loss close to healthy level used problem focused coping behaviors more frequently while facing stressful events.

Patients with lower level of anxiety showed less severe attachment loss in a significant manner and patients with lower score on chronic stress were found in better periodontal health. The chronic stress score
DISCUSSION

For the last many years dental professionals have been suggesting the presence of a relationship between psychosocial stress and periodontitis. It has been demonstrated that the emotional factors and stress play a role in the etiology of necrotizing ulcerative gingivitis (Moulton 1952). Several epidemiological surveys revealed an increase in necrotizing periodontal diseases during periods in which patients were exposed to stress (Pindborg 1951, Giddon et al 1963, Goldhaber & Giddon 1964). Other authors showed that individuals under high working load, bad marital status (Marcences & Sheiham 1992), occupational dissatisfaction (Linden et al 1996), and high psychological strain caused by critical life event (Green et al 1986, Croucher et al 1997) exhibited periodontal destruction more frequently. Critical life events such as loss of spouse may cause a transitory immune suppression (Stein et al 1985).

Nevertheless, this association was dependent of the patients’ favored coping strategy. In people with highly problem orientated coping manner, the study failed to show an association between stress and periodontal status (Genco et al 1999). Epidemiological studies have shown that periodontitis does not affect all subjects in the population in a similar way. Some individuals present risk conditions that make them more susceptible to develop periodontal disease (Page 1998).

During recent years various epidemiological studies carried out in various countries revealed that periodontal diseases in different societies have a different prevalence. (Aieksejunience et al 2002. Alexander Saletu et al. 2005). Inflammation is considered as the causative factor of inflammatory process is the host’s response to bacterial plaque which itself is under the influence of environmental and genetical factors (Newman 2002), initiation and progress of periodontal infections are obviously potentiated by local and systemic situations called risk factors (Genco 1996). Different epidemiological studies have reported various risk factors related to periodontal diseases (Mengel R, 2002). Currently, risk factors including colonization with particular pathogenic bacteria in gingival regions, systemic conditions related to low number of neutrophils, diabetes mellitus, smoking, and local factors are believed to be of importance in pathogenesis of periodontal disease. In addition to age (considering that the disease is most prevalent in elderly) and sex (also it is more prevalent in the males) recent studies refer to two risk-increasing factors of periodontal diseases including stress and coping behavior (Genco, 1996).

Regarding the importance of stress and the possibility of the influential role of other psychological factors and the way people face with stress, this study was aimed to investigate the association of periodontal disease (CAL) with psychological variables. Also it was planned to reveal the relation between stressful situations of life and the clinical loss of periodontal attachment. In the present study the scale for categorization of periodontal diseases was based on clinical attachment loss.10,11 The questionnaires used in this study were internationally recognized and used in other studies performed.9,13,14,15,18 Moreover, each of these psychological tests were reliable and valid. These results show that anxiety and other psychological factors effect CAL of and there was significant relationship between factors and the level of CAL.

The patients with higher mean CAL showed higher anxiety and depression scores. Regarding the nine psychological factors studied following SCL-90-R questionnaire scoring, only two factors namely problem focused coping and emotional focused coping behaviors were assessed. The result revealed likelihood of a higher usage of emotional focused coping in patients with higher CAL (p=0.0002).
According to data of this study, the patients with lower CAL, used problem focused coping behavior more frequently and the difference was shown to be significant. Also that the patients with lower CAL had lower anxiety level. In addition, while studying the correlation between CAL and chronic stress, it was demonstrated that a lower level of suffering from chronic stress was associated with lower clinical attachment loss \( p=0.001 \). These findings are compatible with the results of other studies.\(^4,9,10,13,15,18\)

More studies are needed for further clarification of the relationship of psychological stress factors and their effect on clinical attachment loss or periodontal disease.

CONCLUSION

The findings of this study support the results of the recent studies in which psychological factors, particularly psychological stress and anxiety were shown to increase the risk of periodontal diseases. The data of the present status may also help future studies through designing interventional and preventive measures within the health system to improve the level of psychological health of the patients leading to managing stress more effectively.

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REFERENCES


