INTRODUCTION

There are two major types of destructive periodontal disease currently recognised. The first is chronic periodontitis and the second is aggressive periodontitis (1, 2). Since treatment approach varies for these both forms, differential diagnosis is mandatory, and must be based on specific information about the patient’s medical history, comprehensive clinical examination as well as, if necessary, on the analysis of various tests (3). Some charts for periodontal records are excessively complicated and may lead to the maze of details rather than clarification of the patient’s problem. The lack of evident criteria lies at the bottom of variations in periodontal diagnosis made by different clinicians (4, 5).

It is impossible to apply all parameters described in the literature concerning the diagnosis of periodontitis. To make an accurate periodontal diagnosis the patient’s hygiene, gingival inflammation and the extent of periodontal tissue destruction should be determined. We focused on five selected, objective parameters enumerated in lists of differentiating factors and combined them with the interview, a commonly acknowledged diagnostic factor (6).

MATERIALS AND METHODS

Patients

Sixty three patients were selected from those referred for periodontal therapy to the Department of Periodontology, Wroclaw Medical University. Thirty subjects (twenty three females and seven males) with aggressive periodontitis and thirty three subjects (twenty three females and ten males) with chronic periodontitis were examined in our study.

Periodontal diagnosis

A diagnosis of either chronic or aggressive periodontitis was performed according to the criteria established in 1999 (7) as follows: in order to receive a diagnosis of aggressive periodontitis, patients were required to be systemically healthy; have a positive family history, display a severity of disease disproportionate to the amount of local aetiological factors. Furthermore they had to show evidence of rapid attachment loss and bone loss either with respect to their age, or based on comparisons of available sets of clinical radiographic records obtained at different time points. According to the extent of disease, all cases of periodontitis were classified as generalised. Subjects with chronic periodontitis displayed bone loss at more than 30% of their tooth sites and subjects displaying bone loss in more than two teeth other than incisors and first molars were regarded as having generalised aggressive periodontitis. Exclusion criteria were: age >60 years, any periodontal treatment in the past 3 years, pregnancy and lactation, medical condition which could affect the periodontal tissue, smoking history, non-steroidal anti-inflammatory drugs or antibiotic therapy in the past 6 months.

Objective clinical measurements

Probing pocket depth (PPD) measurements were carried out with periodontal probe (PCPUNC15, Hu-Friedy, Chicago,
Furcation areas were evaluated with the Nabers probe (PQ2N, Hu-Friedy, Chicago, USA). The extent of gingival inflammation was determined with Papilla Bleeding Index (PBI) (8). The accumulation dental plaque was assessed using the Approximal Plaque Index (API) (9).

Anamnesis data was collected with the help of questionnaires. Objective information about patients’ age and subjective information from the patients about the first noticed signs of illness was gathered.

Statistical analysis was performed using a software Epi Info version 3.4.3, CDC, Atlanta, USA). Multiple factor analysis was done with a logistic regression (quasi-Newton method of estimation). Statistical significance was set at a value of p ≤ 0.05.

The protocol was approved by the Ethics Committee of Wroclaw Medical University (approval number KB 956/2005). All patients gave informed consent to participate.

RESULTS

Measured clinical parameters

Four clinically objective parameters were measured according to customary rules described in Materials and Methods. The number of furcations was counted in both studied groups of patients and is presented in Table 1. The number of periodontal pockets shallower than 4 mm is showed in Table 2, while Approximal Plaque Index (API) and Papilla Bleeding Index (PBI) are presented in Table 3 and 4, respectively.

Anamnestic objective and subjective data

Thirty subjects had generalised aggressive periodontitis. The mean age of this group was 35.5 years, with the range from 20 to 43 with standard deviation: 5.2. Thirty three subjects had generalised chronic periodontitis. The mean age was 39 years, with the range from 24 to 56 with standard deviation 7.9.

![Table 1](image.png)

![Table 2](image.png)

![Table 3](image.png)

![Table 4](image.png)

![Table 5](image.png)

OR – odds ratio.
The first symptoms of illness appeared at the average age of 25.4 years in patients with aggressive periodontitis while patients with chronic periodontitis observed the first symptoms at the age of 30.3.

Statistical analysis of measurable clinical parameters and anamnestic data

Multiple factor statistical analysis was performed with logistic regression where statistical significance level was estimated at a value of \( p \leq 0.05 \). All parameters were divided into two subgroups accordingly to the data obtained by descriptive statistics analysis. There were: patient’s age \( \geq 35 \) years old, patient’s age \( \geq 30 \) years old when the first symptoms of disease appeared, \( \geq 0.7 \) for PBI, \( \geq 1.05 \) for API, \( < 70 \) for the number of periodontal pockets shallower than 4 mm and \( \geq 2 \) for the number of furcations. Goodness of fit was estimated basing on \( \chi^2 \) statistics (\( \chi^2 = 57.5 \), \( p = 0.00000 \), \( N = 62 \)). The results of logistic regression analysis are presented in Table 5.

Compatibility of our data with the logistic regression model was proven by statistically significant goodness of fit. It means that there is a high correlation between the probability of prevalence of disease and the investigated parameters. The results presented above showed clearly that it is possible to deduce six parameters useful for differentiation between patients with aggressive and chronic periodontitis.

DISCUSSION

Individuals suspected to have aggressive periodontitis should be diagnosed at the earliest stage to avoid general health deterioration (10, 11). Moreover this group of patients is at risk of premature tooth loss and subsequent necessity of challenging multispecialistic dental treatment (12-14). There is mostly some uncertainty when the differential diagnosis of aggressive and chronic periodontitis has to be made. However, the current classification scheme itemises a number of characteristics required to distinguish between these two major types of disease, the applicability of these criteria in everyday clinical environment is time-consuming and untrustworthy. Three primary conditions for a successful diagnosis of aggressive type of periodontitis (systemic health, familiar aggregation and rapid attachment loss) relay on the patient’s recognition (15).

The main aim of our work was to establish specific, repeatable and adequate to reality list of diagnostic parameters well correlating with a patient’s subjective condition. For that reason we decided to choose four objective measurable clinical parameters customarily in our practice. The results of this study have shown that the parameters used in our model are suitable for determination of likelihood of diagnosing either aggressive or chronic periodontitis. Among the concerned covariates (five objective and one subjective), the most significant were: the total number of furcations, the total number of pockets not exceeding four millimetres, the amount of dental plaque in interdental spaces-API index, the patient’s age, the inflammation of the gingiva-PBI and the age when the first disease symptoms appeared. It means that there is some tendency to have aggressive periodontitis rather than chronic periodontitis among individuals that are characterised by the presence of: two or more furcations, less than 70 pockets shallower than 4 millimeters, values of API smaller than 70%, patient’s age lower than 35 years, values of PBI smaller than 1.05 and the time of appearance of first symptoms of disease before reaching 30 years.

We have achieved the targets we set in this work and confirmed the list of specific and adequate repeatable measurable parameters enabling the differentiation between aggressive and chronic periodontitis and excellently correlating with the patient’s history. That means that dentists have obtained a new tool in periodontitis diagnosis independent of a wide and very subjective patient’s interview.

Conflict of interests: None declared.

REFERENCES


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