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Original article

The impact of some behavioral aspects on periodontal disease in a group of Romanian students – An epidemiological survey

L'impact des aspects comportementaux sur la maladie parodontale dans un groupe d'étudiants roumains – Une étude épidémiologique

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Abstract

Aims. – To investigate the prevalence of periodontitis in a young population representative for the North-western part of Romania (Transylvania) and to identify possible risk indicators of periodontitis.

Methods. – The study is a cross-sectional epidemiological survey. The subjects were students randomly sampled from three universities in Cluj-Napoca and high school students from the neighboring city of Bistrita. The sample size of the population was calculated. Overall, 623 subjects aged 16–35 years were evaluated, of which 488 were university students and 135 high school students. A structured questionnaire was administrated to collect information on socio-behavioral status and oral hygiene habits. Periodontal data was collected using a full-mouth methodology by trained examiners. A recent introduced case definition was used to pick up periodontitis cases.

Results. – The older the subject, the more frequent toothbrushing, dental visits, and use of interproximal hygiene devices, but also addiction to tobacco and alcohol consumption. The prevalence of periodontitis was 0.96% ($n = 6$). Half of these subjects ($n = 3$, 0.48%) were considered to have aggressive periodontitis (AP). Low frequency of toothbrush changing was identified to influence the development of periodontitis. Smoking and lower socioeconomic level did not seem to correlate with periodontal disease in the present study.

Conclusions. – In order to better understand the prevalence of periodontal diseases and identify periodontitis cases as well as to evaluate the impact of specific behavioral factors on the disease development in individual and population levels, further extensive screenings are obviously required. Periodontal prevention programs focusing on oral health behavior are mandatory.
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Keywords: Periodontitis; Epidemiology; Behaviour; Adolescent; Adult

Résumé

Objectifs. – L'analyse de la prévalence de la parodontite chez les jeunes de la région Nord-Ouest de la Roumanie (Transylvanie) et l'identification des facteurs de risque de cette maladie.

Méthodes. – Dans cette étude transversale les sujets ont été tirés au sort dans trois universités de Cluj-Napoca et dans un lycée d'une ville voisine, Bistrita. La taille de l'échantillon a été calculée. Au total, 623 sujets âgés de 16 à 35 ans ont été évalués (488 étudiants et 135 élèves). Les participants ont complété un questionnaire pour collecter des informations sur quelques facteurs comportementaux et des habitudes d'hygiène orale. Le bilan parodontal a été réalisé pour toutes les dents selon un même protocole d'examen. Une définition récente a été utilisée pour identifier les parodontites.

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Résultats. – L'âge était positivement corrélé avec la fréquence du brossage, les visites de contrôle et l'utilisation des moyens d'hygiène interdentaire, ainsi qu'avec la consommation d'alcool et de tabac. La prévalence de la parodontite était de 0,96 % ($n = 6$). Une parodontite agressive a été identifiée dans 0,48 % des cas. Une faible fréquence du brossage était liée à l'existence de parodontite. Ni le tabac ni un faible niveau socio-économique n'ont été identifiés comme influençant le développement de la parodontite.

Conclusion. – Des études épidémiologiques plus approfondies seraient nécessaires pour mieux identifier les parodontites et connaître leur prévalence, ainsi que pour évaluer l'impact de certains facteurs comportementaux sur le développement de ces maladies à l'échelle individuelle et populationnelle. L'implantation de programmes de prévention centrés sur les habitudes d'hygiène orale serait d'une importance majeure.

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Mots clés : Parodontite ; Épidémiologie ; Habitude ; Adolescent ; Adulte

1. Introduction

The term periodontal disease comprises a variety of clinical forms, including chronic periodontitis that affects mostly adults over 35 years of age, and aggressive periodontitis (AP) observed in teenagers and young adults. AP affects a minority of periodontitis patients, but the disease is still highly significant: if left untreated it can lead to early edentulism and poor oral health-related quality of life [1].

A current strategy for adult health care in developed countries is to strengthen the surveillance systems that monitor health status of adults at the national, state, and local levels, and to evaluate public health strategies for prevention [2].

In Europe, national representative data on the prevalence and extent of periodontal disease are rare. Epidemiological studies have found low prevalence of periodontal disease in Sweden (1973–2003) [3], and Switzerland (1992–1999) [4]. In contrast, in Germany the prevalence of periodontitis was 70.9% in 35–44-year-old adults and 87.4% in 75–84-year-old seniors (2005) [5].

Generally, low prevalence rates (∼0.1% to 0.5%) of AP have been reported among Caucasians in developed countries. On the other hand, an astonishing AP ''ceiling'' prevalence of around 3% was estimated for US and of 8% for the Australian population. However, global prevalence of AP remains elusive [6]. Nevertheless, definitions of periodontitis in epidemiological studies lack uniformity and thus the comparisons between studies must be considered with circumspection.

There are few Romanian studies on the epidemiology of periodontal diseases; they included small or specific population samples, or used case definitions now recognized as having limitations [7–9]. Due to unfavorable health policies in the past, data on the prevalence of AP in Romania and on associated risk factors are not available. To our knowledge, no systematic screening of Romanian population groups has been conducted or even scheduled.

This study aimed to investigate the prevalence of periodontal disease, with the focus on AP in a young population representative for the North-western part of Romania (Transylvania) and to assess the association of several demographic, socioeconomic, behavioral and oral hygiene parameters with the occurrence of periodontitis in this group of population.

2. Methods

2.1. Survey overview

This study was a cross-sectional epidemiological survey on a population of North-western Romania conducted by the Periodontology Department of *Iuliu Hatieganu* University of Medicine and Pharmacy in Cluj-Napoca, Romania. The subjects were students sampled from three universities from Cluj-Napoca: Iuliu Hatieganu University of Medicine and Pharmacy (Faculty of Dental Medicine and General Medicine), Technical University, and Babes Bolyai University. High school students were sampled from the neighboring city of Bistrita.

The study design was made with G*Power statistical [10]. Considering a power of 84% for the χ^2 goodness-of-fit tests (contingency tables), with $\alpha = 5\%$ and an effect size of 15%, a sample size of $n = 623$ was obtained. For the Wilcoxon-Mann-Whitney test used to compare the means for two independent groups with $\alpha = 5\%$ and an effect size of 0.3, a test power of 0.837 was obtained.

The inclusion criteria were: age between 16 and 35 and being a university or high school student. The exclusion criteria had in view severe systemic diseases that could profoundly affect periodontal homeostasis.

The cases were selected randomly, following the occupational profile and age group (see below); because the university students in Cluj-Napoca – the largest academic center in Transylvania – are coming from most of the North-western parts of Romania, they are representative for the young population in this area. Selecting high school students answered the need of the investigators to compare younger subjects (theoretically less educated) with university students (hopefully more familiar with health education and health promotion programs, subsequently having healthier oral hygienic habits).

Data were collected from March-June 2013 from two counties of the western region of the country.

Informed consent was obtained from all participants. For the minors, the parents' consent was obtained before the day of the examination by the general dentist in charge of the school's dental practice. He participated in the screening activities.

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