THE PREVALENCE OF GINGIVAL RECESSIONS IN A GROUP OF STUDENTS IN CLUJ-NAPOCA
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Abstract

Gingival Recession (GR) appears in periodontal diseases or in isolation due to traumatic tooth brushing, occlusal traumas or oral piercing.

Objective: The study was designed to establish the prevalence of gingival recession in young people, the intensity and the severity of the disease, as well as the existence of some links and correlations between the investigated parameters.

Material and method: We examined 106 students (4th year students at the Faculty of Psychology in Cluj-Napoca), for which we determined the existence of GR, the height of GR, the height of the keratinized gum, the Miller class.

Results: The GR prevalence was of 50.95%. 17 persons (31.47%) suffered from single tooth GR, 22 persons (40.72%) from two gingival recessions, 11 persons (20.4%) from three gingival recessions, and multiple gingival recessions were identified in 4 persons (7.4%). As concerns the height of the GR, 67.15% were of 1-2 mm, and 32.85% of the GR were over 3 mm.

Conclusions: The obtained prevalence matches the data in specialized literature. The high percentage of GR with root coverage recommendations underlines the importance of early identification.

Key words: gingival recession, prevalence.

Material and method

We examined 106 persons, respectively 59 women (55.66%) and 47 men (44.34%) aged between 22 and 33 (mean age = 24, DS =1.85 years), students at the Faculty of Psychology, the Babeș-Bolyai University of Cluj-Napoca.

Methodology of the clinical examination

We started from the definition of gingival recession, which is “the movement of the gingival margin apically from the cemento-enamel junction (JAC), with the consecutive exposure of the root surface (American Academy of Periodontology 1992). The existence of potential gingival recessions was observed in the vestibular, bi-maxillary area, at the level of the frontal and premolar teeth. The height of the...
gingival recession, measured at the middle of the vestibular surface, from the cement-enamel junction to the level of the free gingival margin, was registered. The measurement of the GR height was performed with the help of a Williams periodontal probe with 1, 2, 3, 5, 7, 8, 9 and 10 mm gradations.

The affiliation of gingival recession to the Miller class was appreciated in order to standardize and quantify the lesions (6). The examination data were registered in record sheets elaborated for this very purpose.

The height of the keratinized gum was also noted for the examined area, being measured from the free gingival margin to the mucogingival junction; it was distinguished with the help of the roll test, as described by Roman et al. 2008 (7).

All the clinical examinations were performed in standard conditions, using the units of the Department of Periodontology, artificial light and appropriate equipment. The examinations were performed by a single investigator, DC. All the persons were informed about the purpose of the study and gave their consent.

**Methodology of the statistical evaluation**

We introduced in the database the registration numbers of the patients, the sex, the age, the examined teeth; for each tooth, we noted the Miller class, the height of the GR and the height of the related keratinized gum.

We calculated: the mean age of the patients, the mean height of the GR height, the mean height of the keratinized gum, the prevalence of the gingival recession, the number of gingival recessions and their percentage distribution, depending on the Miller class, according to the tooth groups. At the level of the group of 106 patients, we studied the existence of potential sex related differences with regard to the height of the fixed gum of the investigated teeth and that of the gingival recession. For this purposes, we used Pearson’s correlation coefficient.

The existence of some sex related differences as concerns the mean values of the GR height, respectively the mean values of the height of the fixed gum, was investigated with the help of Student’s t test, for independent samples.

In the subgroup of patients diagnosed with GR, we investigated the existence of some sex related differences with regard to the frequencies of the cases with 1 or 2 GRs, comparatively to the frequency of the cases with 3 or several GRs. In this respect, we used Fisher’s exact test.

Then, for the teeth diagnosed with GR, we investigated the existence of potential sex related differences with regard to the GR frequency > 3 mm, in comparison with those of 1-2 mm, respectively the GR frequency of the class 2 Miller GRs and the class 1 Miller GRs. Just like in the previous case, we used Fisher’s exact test.

The IT tools used for the description and statistical analysis of the data were Microsoft Excel, respectively SPSS v.13.0.

**Results**

In the study group of 106 persons, we identified 128 GRs in 54 subjects (28 women and 26 men). The GR prevalence was of 50.95%. The GR prevalence was of 55.31% in women and of 47.45% in men. The comparison of the mean values of the GR height of the 47 male patients and the 59 female patients did not identify any statistically significant differences (p > 0.05 – Student’s test, for independent samples) for the 20 investigated teeth.

We identified 46 gingival recessions of small dimensions belonging to class 1 Miller and only seven class 1 GRs higher than 3 mm. We also registered 41 class 2 Miller GRs of 1-2 mm and 35 class 2 Miller GRs of over 3 mm. These aspects, as well as the sex repartition and the expression of the results in percentages, are rendered in table 1 and, respectively, in figure no. 1.

<table>
<thead>
<tr>
<th>Class 1 GR</th>
<th>Class 2 GR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-2 mm</td>
<td>1-2 mm</td>
</tr>
<tr>
<td>1&gt;3 mm</td>
<td>2&gt;3 mm</td>
</tr>
</tbody>
</table>

Table no.1 GR frequency depending on the Miller class and the height of the GR, for both sexes

In the subgroup of patients diagnosed with GR, we investigated the existence of some sex related differences with regard to the frequencies of the cases with 1 or 2 GRs, comparatively to the frequency of the cases with 3 or several GRs. In this respect, we used Fisher’s exact test.

Then, for the teeth diagnosed with GR, we investigated the existence of potential sex related differences with regard to the GR frequency > 3 mm, in comparison with those of 1-2 mm, respectively the GR frequency of the class 2 Miller GRs and the class 1 Miller GRs. Just like in the previous case, we used Fisher’s exact test.

The IT tools used for the description and statistical analysis of the data were Microsoft Excel, respectively SPSS v.13.0.
Figure 1. The percentage distribution of the GR depending on the Miller class and the GR height for both sexes

For the 128 teeth diagnosed with GR, there were no statistically significant differences ($p > 0.05$ – Fisher’s exact test) between the male and the female patients with regard to the GR frequency $> 3$ mm, in comparison with 1-2 mm GRs. Nevertheless, as concerns the male patients, for the 128 teeth with GR, the class 2 Miller frequency (40 cases), in comparison with the class 1 Miller GRs (14 cases), was considerably different ($p = 0.006$ – Fisher’s exact test) from the repartition of the same frequencies in the female patients (36 class 2 Miller cases; 38 class 1 Miller cases).

When we analyzed the intensity of the condition, respectively the number of persons who suffered from GR at one, two or three teeth, we obtained the results presented in Table no. 2, and, respectively, in figure no. 2.

Table 2. The distribution of the affected subjects depending on the intensity of the GR for both sexes

<table>
<thead>
<tr>
<th></th>
<th>1 GR</th>
<th>2 GRs</th>
<th>3 GRs</th>
<th>&gt;3 GRs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Women</td>
<td>8</td>
<td>12</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Men</td>
<td>9</td>
<td>10</td>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>Total subjects</td>
<td>17</td>
<td>22</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Total subjects (%)</td>
<td>31.47</td>
<td>40.72</td>
<td>20.37</td>
<td>7.4</td>
</tr>
</tbody>
</table>

For the 54 patients diagnosed with GR, there were no statistically significant differences ($p > 0.05$ – Fisher’s exact test) between the male and the female patients with regard to the frequency of cases with 1 or 2 GRs, in comparison with the frequency of cases with 3 or several GRs.

Table 3 presents the 1st and 2nd class Miller repartition of GR, depending on the type of the affected tooth.

Table no. 3 – Percentage distribution of the GR depending on the type of affected tooth

We observed 52 gingival recessions, respectively 40.62%, at the level of the maxillary, and 76 GRs, respectively 59.38%, at the level of the mandible. The mean height of the GR, in this study, was of 2.29 mm. For the 14 of the 20 investigated teeth in each of the 106 patients, the calculated correlation coefficients reached the
statistical significance threshold, indicating the existence of a linear, reversely proportional relation between the height of the fixed gum and that of the GR. The value of the global correlation coefficient between the height of the fixed gum and that of the GR was $r = -0.293$ ($p < 0.001$).

**Discussions**

Our study identified a GR prevalence of 50.95%, a value bigger than that of 14.6% reported by Slutzkey and Levin (8), but similar to that of 58% observed for the group age of persons over 30 and reported by Kassab and Cohen (1). Other studies showed a 30% prevalence of GR (McComb 1994). (9)

The GRs were present at a single tooth for 17 persons, respectively 31.47% of the total number. A number of 22 persons, respectively 40.72%, presented 2 GRs, and 11 persons, that is 20.4% of the examined population had 3 GRs. Multiple GRs were present only in 4 subjects, that is in 7.4% of the persons. If we compare our results with the ones obtained by other researchers we notice that the GRs were present at 1 or 2 teeth for 59% persons and at 3 or several teeth for 41% of the subjects, in the study of Slutzkey and Levin (8). Thus, we also identified a bigger number of subjects with 1 or 2 GRs than subjects with several GRs.

The height of the GR, observed in the epidemiological studies, was of 1-2 mm for 79.5% of the cases and ³3 mm for 20.5% of the cases (8). In our study, 67.15% of the GRs were of 1-2 mm, and only 32.85% of the GR were of over 3 mm.

Just like other epidemiological studies (10), the results of our work showed that the gingival recessions were localized most frequently at the level of the mandibular incisors, accounting for a percentage of 20.82%. The second localization in the order of the GR frequency was at the level of the left mandibular canines (15.51%).

Our study identified only GRs of Miller class 1 and 2, more specifically, only GRs belonging to the category of growth defects (5). The assessment of the GR affiliation to the Miller class is important if we consider the excellent prognosis of surgical root coverage for the two categories of GR, in comparison with the more modest results associated with class 3 and 4 Miller GR. We found it useful to advise the patients concerning the necessity of root coverage, especially in the case of over 3 mm GRs.

The height of the keratinized gum was assessed due to the fact that its occurrence is a premise for the preservation of periodontal health. The presence, to some extent, of a quantity of fixed gum, enables the monitoring of the GR evolution for class 1 Miller of small dimensions. The occurrence of the fixed gum is also important from the perspective of the therapeutic results, positively influencing the root coverage associated with mucogingival surgical procedures (11).

As illustrated in this study, a high percentage of the GR cases, more specifically 32.8% were of big dimensions, with a height over 3 mm, in our case, and this situation entails marked esthetic prejudices or painful subjective symptoms that impose, most of the times, the implementation of a treatment meant to cover the uncovered root surfaces. If, to these cases, we also add class 2 Miller GRs of 1-2 mm, which are unstable clinical situations given the absence of the keratinized gum and which accounted for 32.03% of the cases in our study, we can state that practically two thirds of the gingival recessions identified in this study should benefit from a surgical treatment meant to cover the defect areas.

**Conclusions**

The high prevalence of GR, identified in our work, coincides with the specialized literature data. The high percentage of GR with root coverage recommendations underlines the importance of early GR detection, by the dental surgeon, since the identification of the triggering factor can be the only therapeutic option.

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References