Prevalence of dentine hypersensitivity in different age groups

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ABSTRACT
Background: Hypersensitivity of teeth is a common condition. It indicates that enamel or cementum is not present on teeth cervical area and that dentine is exposed, therefore; it will be sensitive to stimuli like tactile, thermal, etc. (4, 5) Hirsefeld carried out a clinical study on tooth brush trauma which discussed the connection of tooth brush to lesions of gingival margin, recession, cervical abrasion and hypersensitivity (6).

Graf and Galasse stated that 51 patients of 351 (14.5%) showed hypersensitive teeth and he suggests that incorrect tooth brushing factors enhance the occurrence of hypersensitive teeth (7). Another study done by Addy had shown that gingival recession which is due to faulty tooth brushing and presence of plaque are factors in the etiology of hypersensitive teeth, however his results showed that brushing is relevant with distribution of hypersensitive teeth but plaque is not a factor in pain initiation. He showed also that sensitivity scores were greater in upper canines and premolars with an increase in mean findings for left compared with right contra- lateral teeth (8).

Moreover, Wichgers and Emert showed nearly 20% of adults have dentine hypersensitive and problem become even more common as people retain their teeth longer and more dental surfaces exposed (9, 10).

INTRODUCTION
Hypersensitivity of teeth is a common condition with an estimated prevalence of 15-30% (1-3). It indicates that enamel or cementum is not present on teeth cervical area and that dentine is exposed, therefore; it will be sensitive to stimuli like tactile, thermal, etc. (4, 5) Hirsefeld carried out a clinical study on tooth brush trauma which discussed the connection of tooth brush to lesions of gingival margin, recession, cervical abrasion and hypersensitivity (6).

Graf and Galasse stated that 51 patients of 351 (14.5%) showed hypersensitive teeth and he suggests that incorrect tooth brushing factors enhance the occurrence of hypersensitive teeth (7). Another study done by Addy had shown that gingival recession which is due to faulty tooth brushing and presence of plaque are factors in the etiology of hypersensitive teeth, however his results showed that brushing is relevant with distribution of hypersensitive teeth but plaque is not a factor in pain initiation. He showed also that sensitivity scores were greater in upper canines and premolars with an increase in mean findings for left compared with right contra- lateral teeth (8).

A positive relationship between root exposure and cervical abrasion was founded and the exposed roots in middle age group showed more abrasion areas and were more frequently in patients with better oral hygiene (11-13).

No epidemiological data could be found in the literatures about the prevalence and intraoral distribution of hypersensitive teeth in Iraqi people. The purpose of the study was to fill this gap of knowledge and find correlation with factors that may be associated with hypersensitivity.

MATERIALS AND METHODS
Hypersensitivity was recorded as present or absent on probing the surfaces of teeth in 500 subjects attending Oral diagnosis clinic, College of Dentistry, University of Baghdad. The subjects were examined for tooth / root exposure, Oral hygiene status, and cervical abrasions.

RESULTS
Prevalence and distribution of hypersensitive teeth in subjects according to age and gender is shown in table 2. A total of 75 persons (15%)...
exhibit hypersensitive teeth from 16 years of age and more, with highest incidence (38.61%) in the (26-35) years of age group. There is a decrease in frequency of hypersensitivity with increasing age in 60s group of both genders (Figure 1).

Table 3 shows the distribution of hypersensitive teeth according to tooth type and intraoral region, 330 teeth were shown to be hypersensitive. Both genders were affected almost equally. Hypersensitivity were absent on lingual surface of the teeth and they were felt on the vestibular surfaces only in both maxilla and mandible most often in the region of 1st premolars reaching to 147. On the other hand, they were also frequently seen in the mandibular front teeth.

The distribution of cervical abrasion defects, tooth/ root exposure and hypersensitivity within the dentition are shown in Figures 2-4. It is obvious that these three parameters are more in maxillary teeth than in mandibular and they are more on the left side of the dentition with the 1st premolars were the mostly affected teeth.

Table 4 shows the distribution of the three parameters in the dentition of the four age groups. The highest incidences of affected teeth with the parameters were in the 3rd age group, whereas more hypersensitive teeth recorded in the 2nd age group.

Table 1: The distribution of subjects and number of teeth present according to age and gender

<table>
<thead>
<tr>
<th>Age</th>
<th>Men</th>
<th>Woman</th>
<th>Total</th>
<th>No. of teeth</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-25</td>
<td>50</td>
<td>38</td>
<td>88</td>
<td>1176</td>
</tr>
<tr>
<td>26-35</td>
<td>78</td>
<td>54</td>
<td>132</td>
<td>3168</td>
</tr>
<tr>
<td>36-45</td>
<td>76</td>
<td>70</td>
<td>146</td>
<td>3212</td>
</tr>
<tr>
<td>≥46</td>
<td>68</td>
<td>66</td>
<td>134</td>
<td>2680</td>
</tr>
<tr>
<td>Total</td>
<td>272</td>
<td>228</td>
<td>500</td>
<td>10236</td>
</tr>
</tbody>
</table>

Table 2: Distribution of hypersensitive teeth in subjects according to age and gender

<table>
<thead>
<tr>
<th>Age</th>
<th>Men</th>
<th>Woman</th>
<th>Total</th>
<th>Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-25</td>
<td>10</td>
<td>11</td>
<td>21</td>
<td>28%</td>
</tr>
<tr>
<td>26-35</td>
<td>17</td>
<td>12</td>
<td>29</td>
<td>38.6%</td>
</tr>
<tr>
<td>36-45</td>
<td>8</td>
<td>7</td>
<td>15</td>
<td>20%</td>
</tr>
<tr>
<td>≥46</td>
<td>5</td>
<td>5</td>
<td>10</td>
<td>13.3%</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>35</td>
<td>75</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 3: Distribution of hypersensitive teeth according to tooth type and intraoral region

<table>
<thead>
<tr>
<th>Tooth Type</th>
<th>Maxillary</th>
<th>Mandibular</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incisors</td>
<td>37</td>
<td>25</td>
<td>62</td>
</tr>
<tr>
<td>Canines</td>
<td>32</td>
<td>35</td>
<td>67</td>
</tr>
<tr>
<td>Premolars</td>
<td>88</td>
<td>59</td>
<td>147</td>
</tr>
<tr>
<td>Molars</td>
<td>31</td>
<td>22</td>
<td>54</td>
</tr>
<tr>
<td>Total</td>
<td>188</td>
<td>141</td>
<td>330</td>
</tr>
</tbody>
</table>

All being on the vestibular surfaces of teeth

DISCUSSION

Hypersensitive teeth constitute the main problem in this investigation. The reported prevalence in this study was 15% and this approximately the same as that reported by Graf and Galasse (7) which are 14.5%. But this percentage was lower than that found by Sangners and Gjermo (15) which is about 23% because the latter had estimated it from the abraded teeth only. However, all agreed in those premolars were the mostly affected in addition, the condition appears most frequently in the age between 25- 35 years. The majority of subjects exhibiting hypersensitivity in this study were not aware of it and only a few persons suffered from the symptoms.

The reported distribution of abrasion defects (Figure 3) and root exposure (Figure 4) within dentition found support in previous studies (10, 12, 14, 15) since the mean number of teeth was high in all samples. The slight tendency towards more frequent observations of lesions (Figure 3 and 4) and hypersensitivity (Figure 2) in the left side of the mouth is probably due to the fact that most people were right handed which inverts the tooth brushing habits.

The study agreed with Gillette and Van house (16), Melosevic and Rylomma et al. (17, 18), in that concomitant root exposure and dental problems in the same area were observed in more than one half of the cases indicating a common etiology. However, some cases with abrasion but no root exposure was also observed, and this maybe due to individual factors. Meanwhile our own observations appear to justify the frictional factors causing these dental problems and that cervical hypersensitivity may accompany these lesions. These factors also had been implicated in the etiology of hypersensitive teeth by Graf and Galasse Addy, Zero and Taan and Awarthani (7, 19, 20). Finally, the following points summarize the outcome of this study:
1- Prevalence of hypersensitive teeth in this Iraqi sample is 15%  
2- Hypersensitivity occur most frequently in the age range of 25-36 years  
3- The most affected intraoral areas on the vestibular surfaces of teeth  
4- Most frequently affected teeth are 1st premolars  
5- There is a definitely a site correlation factors which are the cervical abrasion and root exposure that is enhanced by improper oral hygiene procedures

Figure 1: Bar chart showing distribution of hypersensitive teeth according to age and gender

Figure 2: Bar chart showing distribution of hypersensitive teeth within the dentition

Figure 3: Bar chart showing distribution of cervical abrasion defects within the dentition
Figure 4: Bar chart showing distribution of tooth/root exposure within the dentition

REFERENCES