CAUSES OF TOOTH MORTALITY IN A NIGERIAN URBAN CENTRE

G.A. ADERINOKUN*, O.O. DOSUMU**

INTRODUCTION

It is a generally accepted view that dental caries is the main cause of tooth loss in the younger age groups, whereas, periodontal diseases is responsible for teeth lost after 40 years of age (1). An extensive review of the literature on causes of tooth extraction has shown that there is a wide geographical and cultural variation between different populations. India, for example seems to be a typical example of a country where extractions due to periodontal disease predominate (2), whereas in Scandinavia (3), New Zealand and Australia (4, 5), Canada (6) and Israel (7), caries appears to constitute the main cause of tooth loss. The third group is typified by the United States of America, where both caries and periodontal disease seem to cause more or less equal numbers of tooth extractions (8).

The aim of the present study is to establish the different causes of dental extractions amongst adult patients attending the dental clinic of the University College Hospital (UCH), Ibadan, with the hope of identifying where efforts are to be emphasised in a bid to prevent premature tooth loss.

METHODOLOGY

The dental clinic of the University College Hospital, Ibadan is a tertiary centre taking referrals from lower levels of care, although it also serves as a primary care facility.

A complete list was compiled of all patients above the age of 16 years who had had at least a tooth extracted at the dental clinic of UCH in the period between 1/7/86 and 30/6/87. The records of the patients were reviewed and information retrieved included: the patient’s name, age and sex. Diagnosis referred to the condition which ultimately led to the tooth being extracted. Data concerning the missing teeth were collected and classified using the criteria set by AINAMO and AL. (1984) (9) with some modifications as follows:

. Caries: Whenever the primary cause of extraction is associated with caries, root remanant, failed endodontics, periapical abscess or fracture of tooth weakened by caries or endodontics.
. Periodontal disease: when the reason for extraction is pronounced periodontal breakdown, a loose suppurating tooth or in cases when a periodontally involved tooth is removed before prosthetic therapy.
. Impaction: for extractions due to partially or fully impacted tooth.
. Prosthetics: when a firmly attached tooth which is intact or could be repaired and retained is removed before making full dentures.
. Trauma: when a non-carious associated trauma to tooth is the reason for its removal.
. Orthodontics: whenever a tooth is removed during orthodontic treatment or because of crowding.
. Others: for extractions due to other reasons.

Information gathered from each patient’s record were then collated and the data were analysed.

RESULTS

A total of 1301 persons were recorded to have had tooth extraction done during the set period. The age group 21-30 years was found to have the overwhelmingly largest number of patients from whom teeth were removed, although not the largest number of extracted teeth (Table 1). Overall, the patients who had extraction done included slightly more women (661) than men (640). By dividing the numbers of teeth extracted by the corresponding number of patients, it was noted that the mean number of teeth lost increased from an average of 1.2 teeth at age 16-20 years to a maximum of 3.9 at age 61-70 years (Table 2), but with no particular differences between the sexes.

As shown in Table 3, the most common reason for removal proved to be periodontal disease. About sixty two percent (61.9 %) of all extractions carried out were on this indication. Thirty one percent (31.4 %) of the total extractions done were due to caries. Trauma accounted for 4 % of the teeth lost.

An examination of the different age groups revealed that caries was the most common reason for extraction of teeth among young patients between the age of 16 and 30 years. Beyond 30 years however, the rate of periodontal extractions markedly increased. The
periodontal indication for extraction was as expected, infrequent up to the age of 30 years.

**DISCUSSION**

The results of the present study supports already held belief that periodontal disease is the highest indication for overall tooth loss in this part of the world. A closer look at the younger age groups indicate that dental caries is responsible for more extractions. The higher number of teeth extracted in this age group could be a reflection of the increasing consumption of sugars especially among the affluent young population (10, 11, 12).

Although it is generally assumed that periodontis should increase with age (13), it has now been established that the effect of age on the progression of periodontitis could be negligible when good oral hygiene is maintained (14). It has further been observed that educational status significantly affects the periodontal status of individuals. The efforts at minimising tooth loss may thus be concentrated on reducing tooth loss resulting from periodontal disease. It is particularly essential to increase the level of awareness of people through mass oral health campaign in a bid to reduce periodontally induced tooth mortality.

### Table 1: Total number of teeth extracted from the patients according to their age groups

<table>
<thead>
<tr>
<th>Age groups (years)</th>
<th>Males</th>
<th></th>
<th>Females</th>
<th></th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>n.</td>
<td>Teeth</td>
<td>n.</td>
<td>Teeth</td>
<td>n.</td>
<td>Teeth</td>
</tr>
<tr>
<td>16-20</td>
<td>116</td>
<td>128</td>
<td>166</td>
<td>206</td>
<td>282</td>
</tr>
<tr>
<td>21-30</td>
<td>185</td>
<td>215</td>
<td>196</td>
<td>276</td>
<td>381</td>
</tr>
<tr>
<td>31-40</td>
<td>96</td>
<td>188</td>
<td>104</td>
<td>110</td>
<td>200</td>
</tr>
<tr>
<td>41-50</td>
<td>98</td>
<td>266</td>
<td>54</td>
<td>118</td>
<td>152</td>
</tr>
<tr>
<td>51-60</td>
<td>83</td>
<td>332</td>
<td>81</td>
<td>282</td>
<td>164</td>
</tr>
<tr>
<td>61-70</td>
<td>44</td>
<td>201</td>
<td>45</td>
<td>149</td>
<td>89</td>
</tr>
<tr>
<td>&gt; 70</td>
<td>18</td>
<td>60</td>
<td>15</td>
<td>39</td>
<td>33</td>
</tr>
<tr>
<td>Total</td>
<td>640</td>
<td>1390</td>
<td>661</td>
<td>1180</td>
<td>1301</td>
</tr>
</tbody>
</table>

n. = number of patients in each age-group.

### Table 2: Mean tooth mortality by the age-group of patients

<table>
<thead>
<tr>
<th>Age group (Yrs)</th>
<th>Mean Tooth mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>1.2</td>
</tr>
<tr>
<td>21-30</td>
<td>1.3</td>
</tr>
<tr>
<td>31-40</td>
<td>1.5</td>
</tr>
<tr>
<td>41-50</td>
<td>2.5</td>
</tr>
<tr>
<td>51-60</td>
<td>3.7</td>
</tr>
<tr>
<td>61-70</td>
<td>3.9</td>
</tr>
<tr>
<td>&gt; 70</td>
<td>3.0</td>
</tr>
<tr>
<td>Overall Mean</td>
<td>1.98</td>
</tr>
</tbody>
</table>

### Table 3: Indications for tooth extractions according to the age group of patients seen

<table>
<thead>
<tr>
<th>Age group</th>
<th>Caries</th>
<th>Perio.</th>
<th>Pros.</th>
<th>Impact.</th>
<th>Ortho.</th>
<th>Trauma</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16-20</td>
<td>270</td>
<td>31</td>
<td>-</td>
<td>6</td>
<td>5</td>
<td>22</td>
<td>-</td>
<td>334</td>
</tr>
<tr>
<td>21-30</td>
<td>333</td>
<td>82</td>
<td>-</td>
<td>26</td>
<td>10</td>
<td>34</td>
<td>6</td>
<td>491</td>
</tr>
<tr>
<td>31-40</td>
<td>116</td>
<td>155</td>
<td>-</td>
<td>2</td>
<td>-</td>
<td>24</td>
<td>1</td>
<td>298</td>
</tr>
<tr>
<td>41-50</td>
<td>42</td>
<td>325</td>
<td>-</td>
<td>2</td>
<td>1</td>
<td>14</td>
<td>-</td>
<td>384</td>
</tr>
<tr>
<td>51-60</td>
<td>32</td>
<td>569</td>
<td>-</td>
<td>1</td>
<td>1</td>
<td>7</td>
<td>4</td>
<td>614</td>
</tr>
<tr>
<td>61-70</td>
<td>14</td>
<td>335</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
<td>350</td>
</tr>
<tr>
<td>&gt; 70</td>
<td>1</td>
<td>95</td>
<td>2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>99</td>
</tr>
<tr>
<td>Total</td>
<td>808</td>
<td>1592</td>
<td>2</td>
<td>37</td>
<td>17</td>
<td>102</td>
<td>12</td>
<td>2570</td>
</tr>
</tbody>
</table>

| (%) | 31.4 | 61.9 | 0.5 | 1.4 | 0.7 | 4.0 | 0.5 |
ABSTRACT

In general, numerous conditions are responsible for tooth loss in different parts of the world. Such factors could be geographical, sociological or economical. The objective of this study is to investigate the causes of tooth extractions at the dental hospital of the University College Hospital in Ibadan, Nigeria. Out of the 2570 teeth extracted from adults at the Centre in a period of one year, 61.9 % were due to periodontal disease, 31.4 % were due to dental caries and 4.0 % were following trauma. Efforts directed at preventing periodontal disease and dental caries, both preventable diseases, should markedly reduce the rate of tooth loss in this environment.

Key-words : tooth extraction, tooth mortality.

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