Pattern of Dental Caries among Adults in Purvanchal Region of Uttar Pradesh, India

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Abstract: Background: Despite of advancements in treatment modalities, dental caries remains a serious health problem in human society. Reports on the pattern of dental caries in the Purvanchal region of Uttar Pradesh is lacking in English literature. The present study aimed to describe the pattern of caries among the patients attending the Conservative Dentistry and Endodontic Unit of Faculty of Dental Sciences, Institute of Medical Sciences, Banaras Hindu University, Varanasi. Methodology: A total of 1516 cases were retrieved from the OPD records during a period of two years for the diagnosis of dental caries, age, gender, tooth types and tooth surfaces. The obtained data was entered in MS-Excel spreadsheet and analyzed using SPSS 10.0 software. Results: The results showed that mandibular first molars were more commonly affected. Irrespective of tooth type involved males were more commonly affected. Overall male to female ratio was 1.42:1. Young patients (<30 years) had more class I cavities while class V cavities were seen in patients older than 60 years. Occlusal surface was most commonly affected. Conclusion: The present study provides a baseline data for planning intervention programs that will assist in reducing the occurrence of dental diseases.

Keywords: dental caries, mandibular first molar, occlusal, pattern, tooth surfaces

1. Introduction

Dental caries is defined as an irreversible microbial disease of the calcified tissues of the teeth, characterized by demineralization of the inorganic portion and destruction of the organic substance of the tooth, which often leads to cavitation. In defiance of the advancements in oral science, it continues to be a serious health problem which affects humans of all ages. Although acid generating bacteria are the etiologic agents, dental caries has been thought to be a multi-factorial disease since it is influenced by dietary and host factors as well.

India is a country where a wide diversity is seen in respect to culture, religion, language, food habits, caste and race. As aforementioned, dental caries is not only affected by microbial factors but also by dietary and host factors. Thus, the pattern of caries is expected to vary drastically among the different states of India and amongst different region of any particular state. The prevalence of dental caries in India is reported to be 50-60%. Literature search reveals a limited sporadic data on the prevalence and patterns of dental caries from India. Out of these reported papers more emphasis has been made on the caries pattern in children. Only a few published reports are available on pattern of caries in adult and elderly patients in Indian Population.

Thus the aim of the present paper was to establish the pattern of dental caries among age groups, gender, tooth types and tooth surfaces in patients attending the Conservative Dentistry and Endodontic Unit of Faculty of Dental Sciences, IMS, Banaras Hindu University (BHU), Varanasi which not only serves the population of Purvanchal region of Uttar Pradesh but also the people from the neighboring states mainly Bihar and Jharkhand.

Materials and Methods:

This was a retrospective, cross-sectional study where the OPD records of patients, who attended the Conservative Dentistry and Endodontic Unit, BHU, Varanasi, were retrieved over a period of two years (January 2013-December 2014). Data was analyzed for diagnosis of caries based on tooth and tooth surface affected, age and gender. Patients with incomplete information were excluded from the study. The maxilla and mandible were divided into four quadrants: 1) Right Upper (11-18), 2) Left Upper (21-28), 3) Left Lower (31-38); and 4) Right lower (41-48). FDI Notation was used for tooth numbering. Data that was obtained was entered in an MS-Excel spreadsheet and analyzed using SPSS 10.0 software.

2. Results

A total of 1516 cases were retrieved. We divided them into three age groups (<30 years, 30-60 years and >60 years); furthermore the cavities were classified into class I through class V. Table 1 shows distribution of caries according to age groups. Figure 1 shows distribution of subtypes of cavities in the three age groups. Patients of age less than 30 years showed more class I cavities (46.6%) as compared to class V (3.5%) while people of age greater than 60 years had more percentage of class V cavities (1.1%) as compared to class I (0.7%). Table 2 shows number and percentage of teeth affected by caries on the occlusal surface and among both genders. Mandibular right first molar was the most commonly affected tooth (9.8%). Irrespective of tooth involved males were most commonly affected than females. Over all male to female ratio was 1.42:1. Gender wise percentage distribution amongst three age groups is shown in Figure 2. In all the three age groups males were more commonly affected than females.

In age group I, occlusal surface was most commonly affected followed by mesial, distal and buccal. Same trend
was seen in age group II. However, buccal surface was most commonly affected past 60 years of age (Figure 3). Lower jaw was more commonly affected by class I and class II cavities (46% and 17.3% respectively) while class III and V cavities were frequently seen in maxilla (1.1 % and 4.3% respectively). Percentage distribution of different types of cavities amongst the four quadrants is shown in figure 4.

5. Source of Support

Nil

References


Table 1: Percent distribution of cases amongst different age groups

<table>
<thead>
<tr>
<th>Age group</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group I (&lt;30)</td>
<td>996</td>
<td>65.7</td>
</tr>
<tr>
<td>Group I (30-60)</td>
<td>478</td>
<td>31.5</td>
</tr>
<tr>
<td>Group I (&gt;60)</td>
<td>42</td>
<td>2.8</td>
</tr>
<tr>
<td>Total</td>
<td>1516</td>
<td>100</td>
</tr>
</tbody>
</table>

Table 2: Number and percentage of teeth affected by caries on the occlusal surface and among both genders

<table>
<thead>
<tr>
<th>Tooth Number*</th>
<th>Occlusal Surface Involved</th>
<th>Gender</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Female</td>
</tr>
<tr>
<td>46</td>
<td></td>
<td>9.8</td>
</tr>
<tr>
<td>37</td>
<td></td>
<td>9.3</td>
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<td></td>
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<td>16</td>
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<td>4.5</td>
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<tr>
<td>26</td>
<td></td>
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<td>38</td>
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<td>0.8</td>
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<td>18</td>
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<td>0.6</td>
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<tr>
<td>Others*</td>
<td></td>
<td>6.25</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>63.1</td>
</tr>
</tbody>
</table>

*teeth number in FDI system
*include premolars

Figure 1: Percentage distribution of various cavities in three age groups

Figure 2: Gender distribution amongst different age groups

Figure 3: Distribution of different surfaces involved in different age groups

Figure 4: Percentage distribution of different types of cavities amongst the four quadrants
Legends

1) Table 1: Percent distribution of cases amongst different age groups
2) Table 2: Number and percentage of teeth affected by caries on the occlusal surface and among both genders
3) Figure 1: Percentage distribution of various cavities in three age groups
4) Figure 2: Gender distribution amongst different age groups
5) Figure 3: Distribution of different surfaces involved in different age groups
6) Figure 4: Percentage distribution of different types of cavities amongst the four quadrants