Awareness of Antibiotics and Analgesics Use in Marmara University Hospital

Muhammed Kağan Baş*, Fatima Betul Basturk, Hesna SAZAK ÖVECOGLU

Department of Endodontics, Faculty of Dentistry, Marmara University, Istanbul, Turkey

1. Introduction

With the help of antibiotics, severity of many infections may be alleviated, or their treatment may be ensured. However, inappropriate use of antibiotics by patients may cause to several side effects ranging from gastrointestinal disturbances to anaphylactic shock. Furthermore, this inappropriate use of antibiotics may also cause an increase in the resistant bacteria strains. Pain is one of the main symptoms encountered in dentistry. Thus, analgesics are medications that are frequently present in the routine of dentists. The inappropriate use of analgesics may also lead to adverse effects such as side effects, drug interactions and increases in treatment expenses. Self-medication was described by World Health Organization (WHO) as “the selection and use of medicines by individuals to treat self-recognized illnesses or symptoms.” Access to antibiotics and analgesics without prescription causes an increase in self-medication. The increase in self-medication rate is a global problem. Self-medication rate varies in European countries. Although the purchase of antibiotics without prescription is not possible in Turkey, inappropriate use of antibiotics persists as one of the significant problems. On the other hand, analgesics are sold without prescription and this situation increases the self-medication rate. The increase in antibiotic-resistant bacteria with the inappropriate use of antibiotics is one of the most significant factors threatening public health. Patients, medical doctors, dentists and pharmacists may be responsible in the increase in antibiotic-resistant bacteria. This increase is caused by several factors; incomplete antibiotic treatment processes followed or insufficient doses taken by patients and the prescription of antibiotics by some doctors just to eliminate the symptoms without thinking about the increase in antibiotic-resistant bacteria and by other doctors to please the patients without a clear indication. Dentists prescribe antibiotics to avoid The awareness of the use of antibiotics has been studied. However, these studies did not address the question about the level of self-medication in the society but about the knowledge and the attitude of

* Corresponding author. Muhammed Kağan Baş
E-mail address: m.kaganbas@gmail.com
Department of Endodontics, Faculty of Dentistry, Marmara University, Istanbul, Turkey
http://doi.org/10.30485/IJSRDMS.2019.199805.1017

**ARTICLE INFO**

**ABSTRACT**

**Background and aim:** Inappropriate use of antibiotics and non-narcotic analgesics may lead to adverse side effects. This survey aimed to investigate the awareness, knowledge and attitude of patients regarding the dental use of antibiotics and non-narcotic analgesics.

**Material and methods:** The questionnaire which contained 20 questions was prepared based on similar surveys. The survey with a validated self-administered questionnaire was carried out among patients administered to the Department of Endodontics of Marmara University. The questionnaires were given from and retrieved by the same operator. Patients’ identities remained anonymous. The questionnaire included questions about accessibility, attitude toward usage, efficacy, side effects, resistance, and usage for dental issues.

**Results:** Of all questionnaires distributed, 92.5% were deemed usable. The most frequently used self-medication was non-narcotic analgesics (33%) followed by antibiotics (15%). Of the respondents, 82% reported they had knowledge about the correct time of antibiotic use however, only 67% of the respondents followed that. Most of the respondents (52%) reported quitting the antibiotic use when they believed they were better. The most frequent reasons for antibiotic use were to relieve dental pain (35%), and after root canal treatment (38%). In case of a swelling, 31% reported they should take a course of antibiotics before dental visit.

**Conclusion:** This survey revealed misuse of antibiotics and non-narcotic analgesics associated with many misconceptions and poor knowledge. Also, the necessity of antibiotics and non-narcotic analgesics to treat dental disease and after dental procedures were unclear for the respondents.
doctors’ prescription habits. We aimed to explore the knowledge, the attitude and the awareness of patients about the use of antibiotics and analgesics.\textsuperscript{[20]}

2. Material and methods
A questionnaire of 20 questions was given to 100 patients who were administered to the Endodontics Department of Faculty of Dentistry at Marmara University with dental problems. The study was approved by the Ethical Committee of the Faculty of Dentistry of Marmara University (Approval date and number: December 27th, 2018/258). The exclusion criteria are: patients under the age of 18, patients undergoing antibiotic prophylaxis, patients who did not want to participate in the questionnaire and intellectually disabled patients who could not understand and answer the questions on their own. The questions in the questionnaire were adapted by similar studies.\textsuperscript{[20, 21]} The purpose of the study was explained before the distribution of the questionnaires and the patients did not take part in the survey against their will. No identity information was taken from the participants. The questionnaires were distributed and collected manually by the same operator.

The questionnaire consisted of three parts; the first part included the drug intake attitudes of patients, the second part included the effects, side effects and development of antibiotic resistance and the third part contained the information possessed by patients on drug use related to dental problems. The answers taken from the survey questions were counted and results in percentages were obtained.

3. Results
All the questionnaires that were distributed (n: 100) were collected back and were deemed usable. Individuals between the ages 18 and 70 years were included in the study and no gender discrimination was made. As the answer to the question about why they used non-prescribed drugs without consulting a dentist, 22\% of the patients reported their inability to get an appointment and 22\% reported the long waiting periods at hospitals. While 27\% of the participants stated that they read but could not understand the prospectus, whereas 13\% did not read them at all. The types and the frequencies of the medications and the attitudes of taken by the participants for self-medication are shown in Table 1.

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>ANSWER</th>
<th>PERCENTAGE</th>
</tr>
</thead>
</table>
| What types of drugs have you taken in the past six months for dental problem without prescription of dentist? | • Analgesics  
• Antibiotics  
• Traditional medicines  
• Other | • 33  
• 15  
• 14  
• 11 |
| What is the reason for using a non-prescription medicine without consulting a dentist? | • Prescription not necessary  
• Unavailability of doctors  
• Long queues at hospitals  
• Scared  
• Dental visit is expensive  
• Other | • 10  
• 22  
• 22  
• 5  
• 12  
• 5 |
| What is your average antibiotic usage in one year? | • Never  
• 1-3  
• 4-5  
• More than 6 | • 20  
• 73  
• 7  
• 0 |
| Do you usually keep antibiotics stocks at home? | • Yes  
• No  
• Unsure | • 27  
• 62  
• 11 |
| Do you have knowledge about the correct time of antibiotic usage? Do you follow these times? | • Yes, I follow  
• Yes, I don’t follow  
• No | • 67  
• 15  
• 19 |
| Would you stop taking antibiotics when you’re feeling better? | • Yes  
• No  
• Unsure | • 52  
• 33  
• 25 |
| Do you check the expiration date before using the antibiotics? | • Yes  
• No  
• Unsure | • 73  
• 12  
• 15 |
| Do you read the instructions label of the antibiotics? Are your readings understandable for you? | • Yes and understand  
• Yes and do not understand  
• No | • 61  
• 27  
• 13 |

While 59\% of the participants believed that people could become resistant to antibiotics, only 39\% thought that the use of antibiotics for periods less than the that recommended by the doctors could cause antibiotic resistance to develop. All the answers given to questions asked to the participants related to effects and side effects of antibiotics and development of resistance to antibiotics are shown in Table 2.
35% of the participants stated that they believed that the antibiotics relieved toothache. When they were asked for what kind of dental problem they used non-prescribed drugs, toothache was the answer received from 30% of the participants. When and with what kind of beliefs the patients took medicines for dental problems was evaluated in the section “knowledge related to drugs for dental treatments”. The possibility to access antibiotics without prescription in our country may have affected the results. 73% of the participants stated that they took 1 to 3 boxes of antibiotics per year. This frequency was also in accordance with related studies.[20, 21]

The most frequent reasons for the use of non-prescribed drugs without consulting a dentist were being unable to get an appointment from a dentist and long waiting periods at hospitals. In some other studies, again the length of the waiting periods at Hospitals[20, 28] and the high appointment fees of the dentists[4] were shown as the causes of this situation. The difficulty in getting an appointment and the increase in waiting periods created as a result of the inadequacy of the number of dentists to meet the number of patients increase the level of self-medication.

Most of the participants (67%) told that they knew and followed the attitude and the awareness of the patients related to self-medication more frequently than men.[4, 22, 23, 24, 25] Our results revealed that the most frequently used drugs for self-medication were analgesics, ad was the case in previous studies.[4, 11] The possibility to access participants. When and with what kind of beliefs the patients took medicines for dental problems was evaluated in the section “knowledge related to drugs for dental treatments”.

### Table 2. Antibiotics efficacy, side effects, and resistance.

<table>
<thead>
<tr>
<th>QUESTION</th>
<th>ANSWER</th>
<th>PERCENTAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Which of them is antibiotic?</td>
<td>• Paracetamol</td>
<td>22</td>
</tr>
<tr>
<td></td>
<td>• Aspirin</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>• Amoxicillin</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td>• Ibuprofen</td>
<td>17</td>
</tr>
<tr>
<td>Antibiotics</td>
<td>• Kill bacteria</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>• Kill viruses</td>
<td>36</td>
</tr>
<tr>
<td></td>
<td>• Reduce fever</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>• Cure all infections</td>
<td>20</td>
</tr>
<tr>
<td></td>
<td>• Other</td>
<td>5</td>
</tr>
<tr>
<td>Which of the following might be the hazards associated with self-medication for dental problems?</td>
<td>• Not hazardous</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>• Worsening of existing illness</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td>• Damage to body organs</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>• Mental illness</td>
<td>14</td>
</tr>
<tr>
<td></td>
<td>• Addiction</td>
<td>33</td>
</tr>
<tr>
<td></td>
<td>• Drug resistance</td>
<td>27</td>
</tr>
<tr>
<td></td>
<td>• Poisoning</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td>• Death</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>• Other</td>
<td>3</td>
</tr>
<tr>
<td>Can people become resistant to antibiotics?</td>
<td>• Yes</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>• No</td>
<td>24</td>
</tr>
<tr>
<td></td>
<td>• Unsure</td>
<td>27</td>
</tr>
<tr>
<td>Can bacteria become resistant to antibiotics?</td>
<td>• Yes</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>• No</td>
<td>21</td>
</tr>
<tr>
<td></td>
<td>• Unsure</td>
<td>22</td>
</tr>
<tr>
<td>Do you think not completing the full course of antibiotic may cause resistance to antibiotics?</td>
<td>• Yes</td>
<td>39</td>
</tr>
<tr>
<td></td>
<td>• No</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>• Unsure</td>
<td>44</td>
</tr>
<tr>
<td>Do you think antibiotic effectiveness is reduced if a full course of antibiotics is not completed?</td>
<td>• Yes</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>• No</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>• Unsure</td>
<td>33</td>
</tr>
<tr>
<td>Do you think antibiotic overuse leads to antibiotic resistance?</td>
<td>• Yes</td>
<td>54</td>
</tr>
<tr>
<td></td>
<td>• No</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>• Unsure</td>
<td>40</td>
</tr>
</tbody>
</table>
previous studies. The rate of incompliance to the course of antibiotics was higher according to our survey. The use of antibiotics for periods shorter than recommended causes resistant bacteria strains to thrive. However, only 39% of the participants stated that they knew this. For the question asking whether they read the prospectus of the drugs, while 27% of the participants said that they read but did not understand it, they was understood that 13% did not read them at all. In other words, these people took antibiotics with the recommendations given by pharmacists or doctors or with their insufficient knowledge. Patients need to be informed more about this subject with the purpose of reducing the ratio of those who stop taking antibiotics early and decreasing problems such as the development of antibiotic resistance that occur as a result of this.

Development of antibiotic resistance is seen as one of the important problems for health. While 59% of the participants thought that people could become resistant to antibiotics, 58% of them stated that bacteria could become resistant to antibiotics in the next question. These ratios were found to be similar to those in previous studies.[21] 54% of the participants thought that the excessive use of antibiotics could lead to development of antibiotic resistance. 53% of those answering the questions told that taking the antibiotics for a shorter period than recommended would cause the efficiency of the drug to diminish. By also considering the high percentage of answers given to the questions related to the development of antibiotic resistance stating that they were not sure, it can be seen that the patients are confused in this subject and that they need to be informed.

Only 27% of the participants told that they kept the antibiotics in stock at home and 73% told that they checked the date of expiry before they took the drug. While 57% of the people who answered the questionnaire knew that the antibiotics affected bacteria, 36% thought that they affected viruses. This level of knowledge was seen in a similar way in related studies.[26, 27, 30] This level of knowledge may indicate that patients can choose the wrong medication for their illnesses.

Of all participants, 81% thought that the drugs taken without prescription could be dangerous. This percentage was higher than the percentages of 66.7%[26], 69.6%[30], 53.9%[29], and 77.7%[26] obtained by previous studies. When the patients were asked for which type of dental problems they took non-prescribed drugs, the answer was toothache for 30% of them. To the question seeking the answer to whether antibiotics relieved toothache, 35% said “yes,” and 38% said that they were not sure. While the percentage of the “yes” answer given was lower than the percentage of 71.9% obtained by Mouhieddine et al.[27], it was higher than the percentages of 28.2% and 30.9% obtained by Sheadeh et al.[28] and Ling Oh et al.[29] respectively. This may explain why some patients start taking antibiotics when they experienced toothache.

While 38% of the participants thought that the use of antibiotics was necessary after root canal treatment, 31% of them stated that they took antibiotics before going to the dentist in case of a swelling in their faces. These percentages were found to be lower than the similar studies.[29] However, this situation may explain why some patients insist on using antibiotics after endodontic treatments.

5. Conclusion
In this study, it was understood that the patients had insufficient knowledge and incorrect attitudes related to the use of antibiotics. Also, patients were considerably unconscious about the use of antibiotics in dental treatments. We think that a more detailed perspective about the level of attitude related to the use of medicines by the society should be acquired by making an extensive study encompassing a greater number of universities in Turkey on this subject. Then, the number of life-long programs to raise the awareness of mainly doctors and the pharmacists and all health professionals taking part in the process on the indications for the use, the effects and the side effects of drugs should be increased. Finally, the health professionals should use their incentive to raise the level of knowledge, the attitude and the awareness of the society towards the consequences of the use of drugs without doctor prescription.

Conflict of Interest
The authors declared that there is no conflict of interest.

References


