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Original Research Article

A SURVEY OF KNOWLEDGE AND AWARENESS REGARDING ANTIBIOTICS USE AND RESISTANCE AMONG NEPALESE PATIENTS

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Abstract

Introduction: Antimicrobial resistance is an under-appreciated threat to public health in nations around the globe. The unchecked usage of antibiotics in dentistry can also contribute to emerging antibiotic resistance. With the current rampant usage of antibiotics in the global scenario, it is important to know about the knowledge and awareness of patients regarding various aspects of antibiotics. However, relatively few works have been published on the effect of knowledge of antibiotics on its use, even lesser in context to Nepalese dental patients. This study aims to assess the knowledge about antibiotic treatment and awareness of antibiotic resistance among dental patients. **Materials and Methods**: A cross-sectional study was carried out during world antibiotic awareness week from November 13-19, 2017 in dental patients visiting Kantipur Dental College Teaching Hospital, Kathmandu, Nepal. We explained the aim of the study. Patients seeking dental services who were willing to participate signed an informed written consent were enrolled in the study. Pretested questionnaires were distributed among patients attending dental OPD. The responses in the questionnaire were used to assess the knowledge about various aspects of antibiotic treatment and antibiotic resistance in dental patients. The data were analyzed using SPSS version 20. **Results:** In this study, 136 patients responded out of 203 (with a response rate of 66.7%) that were valid for analysis. The knowledge about antibiotics use was found significantly low based on their actual practice though they had followed doctors and medical professional's instructions. Our study showed that patient's knowledge of antibiotics had a positive association with their attitude and had a negative association on awareness of the importance of the public education about antimicrobial resistance. **Conclusion:** The dental patients did not have adequate knowledge of antibiotic treatment, use, and resistance. To prevent antibiotic resistance, more efforts should be made to educate the general public regarding the appropriate dispensing of antibiotics.

Keywords: Antibiotic; awareness; dental patients; knowledge; resistance

Introduction

Antibiotic resistance has increasingly been recognized as a major healthcare issue.[1] A key factor for the increase and spread of antibiotic resistance is considered to be the irrational antibiotic use.[2] World Health Organization (WHO) in 2011, set World Health Day theme as "Combat Antimicrobial Resistance: No Action Today, No Cure Tomorrow."[3] This shows a serious and global concern of antibiotic abuse and there is a growing consensus to urgently develop new strategies for the prevention of bacterial resistance to antibiotics but even after seven years, this is still a burning issue worldwide.[4] Health care professionals (doctors, nurses, pharmacist, and others) are irrationally using antibiotics in their regular practice so the general perception of the public about antibiotic use and its resistance is even worse.[3] Understanding patients' knowledge, attitude, and practices may facilitate more effective communication between the clinician and patient, as well as aid in the development of strategies to educate patients and the general public.[1]

The general public's lack of understanding of the usage of antibiotics and the necessity to establish certain guidelines for public education on the use of antibiotics are reflected by various surveys.[4] Several studies have shown patients or patient attendants' expectations of antibiotic therapy or expectations as perceived by the doctor, to be a determining factor for antibiotic prescribing.[1]

A selective pressure is created on health professionals on the use of antibacterial agents for the emergence of resistant strain mechanisms.[5] Growing antibiotic resistance threatens the effectiveness of antibiotics now and in the future.[5] The emergence of antibiotic resistance is led by antibiotic exposure.[5] The use of short course antibiotic therapy in dentistry has been investigated and found to be successful, while also reducing the risk of antibiotic resistance.[6] However, antibiotics for short courses should have a rapid onset of action; bactericidal activity; not promote resistant mutants; easily penetrate into tissues; be active against non-dividing bacteria, and not be affected by adverse infection conditions.[5] Antimicrobial drugs are an important resource that must be conserved for future use.[7] To do this requires knowledge of the size of the problem and early warnings of the emergence of resistant isolates.[7]

Materials and Methods

This cross-sectional study was undertaken during Antibiotic Awareness week from November 13-19, 2017 among dental patients visiting Kantipur Dental College Teaching Hospital (KDC-TH), Basundhara, Kathmandu, Nepal. Pretested questionnaires were distributed among patients attending dental OPD at KDC-TH. The researchers explained the objectives of the study and dental patients who were willing to participate were asked to sign an informed consent. The questionnaires were provided and collected after it was filled. On patients' request, the questionnaires were filled by the researchers according to the patient's responses. The survey items were derived from existing questionnaires exploring the knowledge of dental patients regarding antibiotic resistance awareness. The proforma consists of multiple-choice questions on the knowledge and awareness about antibiotics treatment and resistance and their attitude towards its use. Data analysis was done using SPSS version 20 software.

Results

A total of 136 patients out of 203 attending the dental OPD responded with a response rate of 66.7%. There were 74 (54.4%) male and 62 (45.6%) female participants (figure 1). Most of the participants (36%) belonged to 40-59 years

age group (figure 2). Furthermore, most of the patients had taken antibiotics "in the last month" or "more than a year ago" which was 45 (33.1%) patients in both groups (Table 1). A maximum number of patients were prescribed by doctors and nurses which accounted for 97 (71.3%) individuals. Of the total patients, 107 (78.7%) had received advice to take antibiotics with food for seven days. About 112 (82.2%) patients took antibiotics from the medical store and pharmacy. A total of 71 (52.2%) agreed that antibiotics should be stopped as directed by doctors. Among the participants, 99 (72.8%) patients did not use antibiotics given to a friend or family member that was used to treat the same illness. However, 70 (51.5%) patients bought the same antibiotics or requested a doctor if they were not well to help them get better, or when they had the similar symptoms.

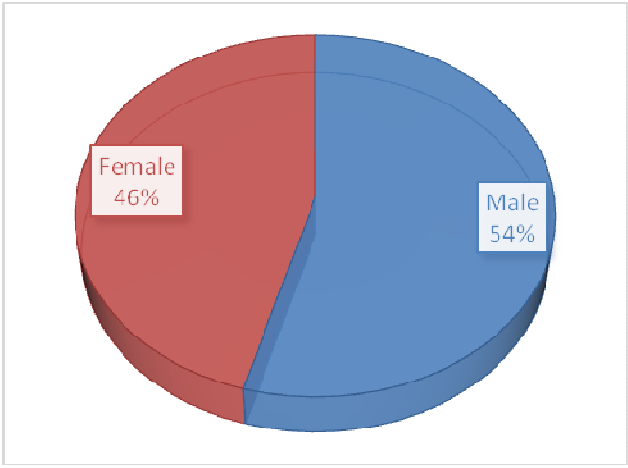

Figure 1. Sex-wise distribution

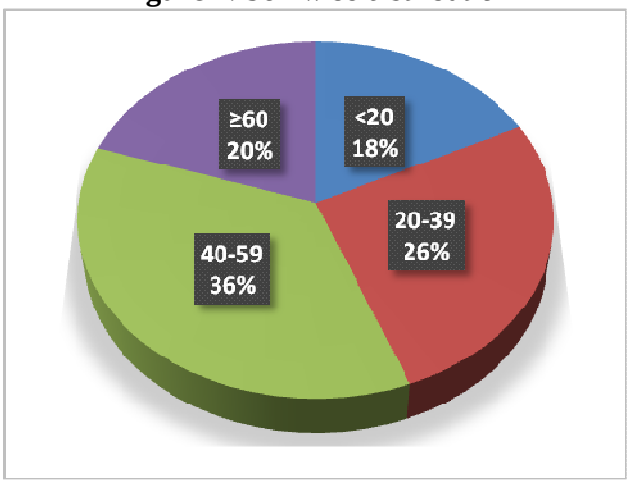

Figure 2. Age-wise distribution

Majority of the patients thought that there was the role of antibiotic in fever (74, 54.4%). On contrary, majority of the patients believed that there was no role of antibiotics in treating HIV/AIDS (129, 94.9%), bladder and urinary tract infection (UTI, 107, 78.7%), gonorrhea (120, 88.2%), malaria (101, 74.3%), diarrhoea (99, 72.8%), measles (112, 82.4%), skin wound infection 83 (61%), and cold and flu (74, 54.4%). More often than not, the patients had not heard about terms like antibiotic

resistance, antimicrobial resistance (AMR), drug resistance and antibiotic-resistant bacteria.

Table 1: Questions and responses of the participants, n (%).

When did you last take antibiotics?	
in last month	45 (33.1)
in the last 6 month	30 (22.1)
in the last year	16 (11.7)
more than a year ago	45 (33.1)
Total	136 (100)
On the occasion, did you get the antibiotics (or a prescription for them) from a doctor or nurse?	
Yes	97 (71.3)
No	27 (19.9)
can't remember	12 (8.8)
Total	136 (100)
On that occasion, did you get advice from a doctor, nurse or pharmacist on how to take them?	
Yes I received advice on how to take them (e.g., with food, for 7 days)	107 (78.7)
No	16 (11.8)
Can't remember	12 (8.8)
Total	136 (100)
On that occasion, where did you get the antibiotics?	
Medical store or pharmacy	112 (82.4)
Stall or hawker	3 (2.2)
Internet	9 (6.6)
Friend or family member	7 (5.1)
I had them saved up from a previous time	2 (1.5)
Total	136 (100)
When do you think you should you stop taking antibiotics once you've begun treatment?	
When you feel better	46 (33.8)
When you've taken all of the antibiotics as directed	71 (52.2)
Don't know	18 (13.2)
Total	136 (100)
"It's okay to use antibiotics that were given to a friend or family member, as long as they were used to treat the same illness."	
False	99 (72.8)
True	37 (27.2)
Total	136 (100)
It's okay to buy the same antibiotics, or request these from a doctor, if you're sick and to get better when you had the same symptoms before".	
False	66 (48.5)

True	70 (51.5)
Total	136 (100)
Do you think these conditions can be treated with antibiotics?	
Use of antibiotic in fever	
False	62 (45.6)
True	74 (54.4)
Total	136 (100)
Use of antibiotics in HIV/AIDS	
False	129 (94.9)
True	7 (5.1)
Total	136 (100)
Use of antibiotics in the bladder and urinary tract infection	
False	107 (78.7)
True	29 (21.3)
Total	136 (100)
Use of antibiotics in gonorrhea	
False	120 (88.2)
True	16 (11.8)
Total	136 (100)
Use of antibiotics in malaria	
False	101 (74.3)
True	35 (25.7)
Total	136 (100)
Use of antibiotics in diarrhea	
False	99 (72.8)
True	37 (27.2)
Total	136 (100)
Use of antibiotics in measles	
False	112 (82.4)
True	24 (17.6)
Total	136 (100)
Use of antibiotics in the skin and wound infection	
False	83 (61)
True	53 (39)
Total	136 (100)
Use of antibiotics in cold and flu	
False	74 (54.4)
True	62 (45.6)
Total	136 (100)
Have you heard of any of the following terms	
Antibiotic resistance	
Yes	0(0)
No	136 (100)
Total	136 (100)

Antimicrobial resistance	
Yes	0(0)
No	136 (100)
Total	136 (100)
AMR	
Yes	0(0)
No	136 (100)
Total	136 (100)
Drug resistance	
Yes	0(0)
No	136 (100)
Total	136 (100)
Antibiotic-resistant bacteria	
Yes	0(0)
No	136 (100)
Total	136 (100)

Discussion

This study surveyed the knowledge about antibiotic treatment and awareness of antibiotic resistance among patients visiting KDC-TH seeking dental services. According to this study, many patients had taken antibiotics from pharmacies and medical shops as a prescription from a doctor or medical professional. Most of them had taken antibiotic within a month and a year for various illnesses, which depicts the worst case scenario of antibiotic misuse. A very large British face-to-face survey found that 97% of their respondents knew that antibiotics should not be taken unnecessarily and 79% were aware that antibiotic resistance was a problem in British hospitals. However, 38% thought antibiotics work on most cough and cold, 54% believed that antibiotics can kill viruses and 43% did not know that antibiotics can kill the bacteria that normally live on the skin and in the gut.[8] Current study revealed, 78.7% of the total patients had received advice to take antibiotics with food for seven days. Total of 82.2% of patients took antibiotics from medical stores and pharmacies whereas 71.3% took the course of antibiotics as prescribed by the medical personnel. Similarly, 45.6% believed that antibiotics need to be used in cold and flu, 39% believed that antibiotics need to be used in skin infections, 34.4% believed that antibiotics can be used in fever, 27.2% in diarrhea, 5.1% in HIV/AIDS, 11.8% in gonorrhea, 17.6%in measles and 21.3% in bladder infection and UTI. The result of this study also prompts that the antibiotic knowledge and education to change attitude should be strengthened in Nepal. Many patients believed that antibiotics can speed up the recovery of common cold, cough and a number of other related illnesses airing from viral infections. This could be an important cause of antibiotic overuse. However, 72.8% of patients did not agree to use antibiotics that were given to a friend or family member as long as they were used to treat the same illness. Among 136 participants in this study, 117 patients considered taking antibiotics from pharmacy and drug store relevant and only 97 patients considered taking antibiotics from doctors and nurses relevant. Overall 8% of our respondents had ever taken an antibiotic without advice from a doctor, dentist or nurse. This was similar to the results obtained in a pan-European survey which

showed that self-medication varied from 0.1% to 21% and was higher in East and South Europe while it was found lower in North and West Europe.[9] This finding was lower than the reported antibiotic self-medication rates in some other studies, for example, 26% in Hondurus.[10] Similarly, our reported rate of giving antibiotics to another person which was 27.2% was relatively higher than in other locations, i.e, 11% in Malta[11] and 7% in New York.[12] The respondents showed some confusion regarding the terms 'bacteria' and 'viruses' and the meaning of these in relation to the prescribing decision.

When the relationship of knowledge and awareness was analyzed, it showed that patient's knowledge on antibiotics had a positive association with their attitude and had negative with awareness of the importance of public education about antimicrobial resistance, drug resistance, and antibiotics resistance. At present, many countries like Britain and the Netherlands are focusing on public education aimed to change the irrational and indiscriminate antibiotic use in the society and nation in order to curtail the developing antibiotic resistance. In a Scottish survey in 2000, 45% of respondents stated that 'antibiotic resistance does not matter to me.[13] And in a multinational survey, none of the 5379 respondents mentioned antibiotic resistance as a negative consequence of taking antibiotics.[14]

Conclusions

Antibiotic resistance is an underestimated health issue in a developing country like Nepal. The excessive use of antibiotics by health care professionals as well as patients and the general public should be stopped immediately. More focus should be on infection control, better diagnosis and checked to dispense of antibiotics. Simultaneously, the public should be educated about the appropriate use of antibiotics, the various adverse effects and along with an emphasis on antibiotic resistance.

Limitations: This study was conducted in a definite number of patients visiting dental OPD of a dental college during a short period of time.

Conflict of Interest: None

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