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Full Length Research Paper

Antibiotic self-medication among university medical undergraduates in Northern Nigeria

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Self-medication is becoming a common type of self-care behavior among the population of many countries. Many international studies have investigated the prevalence and nature of self-medication practices at the population level. In Nigeria, some workers have also looked at the population prevalence of self-medication in general; however the prevalence of antibiotic self-medication among medical undergraduates has not yet been studied. The interest in studying this practice among this select group is due to the fact that they are the future prescribers and health educators of the population of Nigeria. The study was a cross-sectional pre-tested questionnaire-based study carried out among medical students of the Bayero University, Kano, North-West Nigeria during a two-week period in August 2008. The information from the returned questionnaire were coded, entered and analyzed using SPSS Version 12 statistical software. A total of 183 students filled and returned the questionnaire giving a response rate of 83.2%. Out of these respondents, 120 (65.6%) were males and the mean age of respondents was 23.2 ± 2.5 years (Range 17 to 31). 71 (38.8%) of the medical students admitted to the practice and there was no statistically significant difference among the different levels of medical education (p >0.05). Antibiotics from the penicillin group (ampicillin/cloxacillin, amoxicillin and ampicillin) were the most frequently used. Self-medication with antibiotics is prevalent among medical undergraduates in Northern Nigeria. There is a need for an intervention to address this practice.

Key words: Antibiotics, self-medication, medical undergraduates, Nigeria.

INTRODUCTION

Antibiotics are one of the most prescribed drugs worldwide (Tünger et al., 2000). Self-medication with antibiotics is a common practice in many countries in the world although the trend seems to be more in developing or resource-poor nations (Awad et al., 2005). Some of the reasons that have been found responsible for this trend include lack of access to health care, availability of antibiotics as over the counter (OTC) drugs and in open markets and poor regulatory practices (Vaananen et al., 2006). Self-medication with antibiotics has been identified as one form of irrational use of medicine contributing to increased healthcare costs, antimicrobial drug resistance and sometimes increased morbidity among the population (Aswapokee et al., 1990; Okeke et al., 1999). The practice of self-medication in general has been widely studied among populations of many countries in Africa, Asia and Europe (Martins et al., 2002; Yousef et al., 2008; Awad et al., 2007a). One of the factors that have been found to influence this practice is the level of education of the research participants (Afolabi, 2008). Many studies have also previously looked at the prevalence, nature and reasons for self-medication among university undergraduates (non-medical) in different countries of the world (Zafar et al., 2008; Sawalha, 2008; Lucas et al., 2007). There are also studies on general self-medication practices among medical undergraduates in some other countries (Buke et al., 2005; Chowdhury

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et al., 2009). In Nigeria, previous studies have concentrated on general self-medication practices among the population (Afolabi, 2008) and health care workers (Bamgboye et al., 2006). This study of antibiotic self-medication practice among university medical undergraduates in Nigeria is very important as they are a segment of the population that is highly educated and with access to information regarding their health. Looking at this practice among medical undergraduates is also very vital as they represent the future generation of drug prescribers and health educationists. The understanding of the level of antibiotic self-medication practice and the reasons for it will enable for different interventional strategies. It will also help policy makers to develop approaches for a more rational use of antibiotics in the community in general. The main objective of this study was to determine the frequency and nature of antibiotic self-medication practice among university medical undergraduates in the Northern part of Nigeria. This study also sought if there is any relationship between the level of medical education and the self-medication practice.

METHODS

The study was a cross-sectional questionnaire-based study carried out among medical students of the Bayero University, Kano, North-West Nigeria during a two-week period in August 2008.

Sampling

A total of two hundred and twenty self-administered questionnaires were distributed to students from different level of medical education (200 to 500 Level) using a convenient sampling system.

Questionnaire

The questionnaire which had been pre-tested among students of another faculty in the university consisted of both open and close ended questions. The questionnaires were administered to the students through their class representatives who also returned the filled ones. The act of filling and returning of the forms was taken as consent of the students to participate and the study was approved by the Hospital Ethics Committee. The lead question was “Have you practiced self-medication with antibiotics in the last two months?’The duration of two months was chosen because of the belief that recall of medication use is still very reliable within that time frame. Other questions include: The reasons for indulging in self-medication, conditions for which the drugs were taken and the antibiotics that were being used.

Statistical analyses

The information from the returned questionnaire were coded and entered using SPSS version 12 statistical software. Results were expressed as counts and percentages while Chi-square test was used for to investigate possible associations between sex, level of medical education and antibiotic self-medication practice. A p-value < 0.05 was considered as statistically significant for the purpose of this study.

RESULTS

A total of one 183 students filled and returned the questionnaire giving a response rate of 83.2%. Out of these respondents, one hundred and twenty (65.6%) were males and the mean age of all respondents was 23.2 ± 2.5 years (Range 17 to 31 years). The distribution of the respondents according to level of medical education is shown in Table 1. In response to the question whether respondents had practiced self-medication in the preceding two months, 71 (38.8%) of the medical students admitted to the practice and there was no statistically significant difference among the different levels of medical education ($p > 0.05$). Though self-medication with antibiotics was more common among the male students, this difference was not statistically significant ($p > 0.05$). The common conditions for which the antibiotics were taken include diarrhea, sore throat, fever, cough and catarrh among others (Table 2). Antibiotics from the penicillin group (ampicillin/cloxacillin, amoxicillin and ampicillin) were the most frequently used for self-medication among the respondents (Table 3).

29 (42.6%) of the medical undergraduates who indulged in the practice did it because they considered their ailment as being mild while 24 (35.3%) were involved in it because of their past experience with the particular antibiotic. Regarding the source of the antibiotics used for self-medication, majority of the respondents (57.4%) patronized patent medicine stores while hospital and community pharmacies were the suppliers for 13 (19.1%) and 11 (16.2%) of the respondents, respectively. Only 1 respondent (1.5%) used the leftover from a previous prescription in this study. Majority of the medical undergraduates (89.6%) knew that the normal duration of treatment was supposed to be at least a minimum of 5 days; however only 34 (49.3%) of the respondents actually completed the course of treatment. This study also found out that gender of the respondents did not influence significantly the practice of antibiotic self-medication ($p = 0.07$).

DISCUSSION

Sample population and self-medication

The frequency of antibiotic self- medication observed in our study is slightly lower than that reported in similar studies in Africa (Awad and Eltayeb, 2007b) and closer to that found in population-based studies in Jordan and Lithuania (Al-Azzam et al., 2007; Berzanskyte et al., 2006). This goes to show that there might not be a significant difference in self-care or health-seeking behavior between our segment of the population and the general population. This conclusion is also supported by findings from a study on self-medication in general among

Table 1. Distribution of respondents by level of medical education and practice of self-medication.

University level	Self-medication (Y)	Self-medication (N)	Total number of respondent
200	10	31	41
300	20	26	46
400	27	43	70
500	12	9	21
Missing value	2	3	5
Total	71	112	183

Table 2. Conditions for which self-medication was practiced.

Condition	No. of respondents (Percentage)
Diarrhoea	17 (24.6)
Sore throat	14 (20.3)
Fever	12 (17.4)
Cough	6 (8.7)
Catarrh	4 (5.8)
Toothache	4 (5.8)
Body aches	2 (2.9)
Others	10 (14.5)

Table 3. Commonly used antibiotics by respondents.

Antibiotics	Frequency (Percentage)
Ampicillin/cloxacillin	15 (22.1)
Amoxicillin	12 (17.6)
Metronidazole	12 (17.6)
Co-trimoxazole	8 (11.8)
Ciprofloxacin	6 (8.8)
Tetracycline	6 (8.8)
Amoxicillin/Clavulanic acid	3 (4.4)
Penicillin G	1 (1.5)

health care workers of a tertiary healthcare facility in South-West Nigeria where over 70% of them were engaged in the practice (Bamgboye et al., 2006). Another possible explanation is that the earlier quoted population-based studies were carried out in societies where the literacy levels are relatively high. It is also important to note that such levels of antibiotic self-medication even exists in some countries with more stringent access to drugs, this being made possible by use of left-overs from previous prescriptions.

Clinical features and self-medication

There are similarities in the conditions for which self-medication was practiced in our study with several other university and community-based studies (Zafar et al., 2008; Shankar et al., 2002; James et al., 2006). These findings emphasize the fact that self-medication is usually resorted to by individuals for perceived mild clinical conditions. The problem with this practice is that fever and other similar symptoms which could be due to viral conditions are usually wrongly treated with antibiotics creating a foundation for possible development of resistance to antibiotics in addition to financial loss and possible adverse drug reactions.

Antibiotic and self-medication

The choice of the antibiotics from the penicillin group (especially ampicillin/cloxacillin and amoxicillin) by majority of respondents in our study is in keeping with findings from other studies (Awad et al., 2005; Awad and Eltayeb, 2007b; Raz et al., 2005). The choice of the antibiotics from the penicillin group could be due to the following reasons:

1. They are cheap, easily accessible, have a good safety profile and somehow broad spectrum of antimicrobial activity. The relatively low patronage of antibiotics like amoxicillin/clavulanic acid could be due to its cost (about 1500 Naira /10 US Dollars) per course of treatment, this in a country where over 60% of the population survive on less than 2 US Dollars daily.

2. It is also pertinent to note that at the moment, there are no restrictions to how and where antibiotics can be sold in Nigeria hence the easy accessibility. Most of our respondents got their supply from patent medicine stores, hospital and community pharmacies reinforcing the earlier mentioned problem of lack of regulation. This is at variance with findings from other studies where left-over from old prescriptions were the main source of supply reflecting a more regulated access to antibiotics in these societies (Awad and Eltayeb, 2007b; James et al., 2006).

This study revealed no strong associations between gender, level of medical education and the practice of antibiotic self-medication, a finding that is somehow different from the result of similar research in the Arabian Gulf (James et al., 2008) where the prevalence of self-medication was higher in the more senior medical students. Presently in many medical schools in Nigeria,

pharmacology is taught either before the clinical training or at its initial stage and there is no significant reinforcement during the latter stages. Also too much attention is being placed on the basic aspect of pharmacology to the detriment of its clinical section and paying attention to this problem might be one level of intervention to address it.

Conclusion

This study has shown that self-medication with antibiotics is common among medical undergraduates in Northern Nigeria. There is a need for a review of educational programs especially the teaching of clinical pharmacology to include modules on self- medication and rational use of medicines. At the policy-making level, there is an urgent need to legislate and enforce laws restricting access to antibiotics in Nigeria. Most importantly, there is a need for a robust public enlightenment campaign to educate the populace of the disadvantages and possible complications of antibiotic self-medication.

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