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Prescribing Pattern of Antibiotics in ENT Outpatients of Tertiary Care Hospital in Bharatpur, Nepal

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ABSTRACT

Introduction

Upper respiratory tract infection (URTI) like pharyngitis, tonsillitis, sinusitis, laryngitis and otitis media are the most common infections encountered in ENT outpatients. As these infections are caused by the microorganism they should be treated with the antimicrobial agents. The aim of this study was to determine the prescribing pattern of antibiotics in ENT outpatients of tertiary Care Hospital in Bharatpur, Nepal.

Methods

It was prospective observational study which was carried out in the ENT department of College of Medical Science, Bharatpur, Chitwan, Nepal. Total 267 prescriptions were studied. Patient of all age groups and sex were included in the study. Prescriptions were evaluated based on the World Health Organization (WHO) core drug prescribing indicators. Results on categorical measurements are presented in numbers and percentage which was used to generate tables and graphs. Data analysis was done by SPSS software version 20.0

Results

A total of 267 prescriptions were collected and analyzed during the study. Average number of drugs per prescription was 3.12 in which average number of antibiotic per prescription was 1.041. Commonly prescribed antibiotics belongs to the penicillin group (52%) followed by macrolide (27%). Most of the drugs were prescribed by their brand names (92%). Besides antibiotics the common adjuvant drugs that are being prescribed were nasal decongestant (44%) followed by anti-histaminics (27.7%).

Conclusions

The present study highlights the wide use of Amoxicillin and clavulanic acid combination for ENT infections. Measures to emphasize the use of generic names are necessary to promote rational drug use.

Keywords: antibiotic; prescription; upper respiratory tract infection.

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INTRODUCTION

ENT infections affects all age groups from children to adults with significant impairment in daily life.[1] According to World health report of 2010, it has been estimated that respiratory infections were fourth major cause of mortality for global number of deaths and also generated that 94.6 disability adjusted life years lost worldwide.[2]

Several studies on pattern of drug utilization in URTIs highlight the frequent use of antibiotics.[3]According to a recent study, the most common reason for seeking attention in ENT OPD are acute respiratory infections and accounts for 75% of antibiotic prescriptions each year.[4] Since most ENT infections are caused by bacteria, fungi and viruses, the goal of antimicrobial therapy should be to cure the infections by use of appropriate antimicrobial and minimize any untoward complications.[5,6]

It is important to analyze and monitor the prescribing patterns of drug used and basic drug modification in prescribing pattern to improve the therapeutic value and prevent emergence of drug resistance. Taking these factors into consideration present study was undertaken to assess the prescribing pattern of antibiotics in ENT outpatients of COMS-TH.

METHODS

The study was conducted at outpatient of ENT department at College of Medical Science, Bharatpur-10, Chitwan, Nepal after the approval from Institutional Review Committee (IRC No. 2021-156). It was prospective observational study carried out over the period of three months from January to March 2022. Patients of all age group and either sex suffering from any ENT infections and seeking consultation in ENT OPD were included in the study after taking informed consent. In case of minors the informed consent was taken from attending parents. Those patients who were not giving informed consent for study, pregnant woman and in-patients were excluded in the study.

Sample size was calculated by taking prevalence as 50%, 95% CI and 6% margin of error, the optimal sample size was 267. Sample was selected by using Non-probability (purposive) sampling technique.

The sample size was calculated using the following formula (Cochran formula)

Prevalence of Antibiotic prescription unknown therefore 50% is used i.e 0.5

Margin of error (e)= 6%=0.06

Z-score value of 95% (C.I) =1.96

$$\text{Sample size } (n) = Z^2 p(1-p)/e^2$$

$$= (1.96)^2 \times 0.5 \times 0.5/0.06^2$$

$$= 0.9604/0.0036$$

$$= 267$$

Optimal sample size (n) = 267

Duplicate carbon copies of the original prescription written by ENT consultants were collected from OPD at regular intervals for data collection. The data regarding the patient details, diagnosis, drug particulars and duration of treatment was recorded from the patients' prescriptions in the predesigned proforma.

Prescriptions were evaluated based on the world health organization (WHO) core drug prescribing indicator (average number of drugs per prescription, average number of antibiotics per prescription, percentage of drug prescribed by generic name and percentage of drugs prescribed from the Essential Drugs list). Antibiotic prescribing pattern was analyzed based on the therapeutic group, dosage form of antibiotics, route of administration, class of antibiotics and commonly prescribed antibiotics for ENT infections.

The indicators were expressed using descriptive statistics as mean and percentage. Results on categorical measurements are presented in numbers and percentage which was used to generate tables and graphs.

RESULT

The present study was carried out for the period of 3month, based on inclusion and exclusion criteria specified in the methods. Total 267 prescriptions records were collected. Among them 195 were males and 72 were females. The proportion of male patients (73%) was more compared to the female patients (27%).

Maximum number of patient belongs to the age group of 20-40 followed by <20 and 41-60 (**Table 1)** with mean age of 32.51±13.84.

Table 1. Distribution of the patient based on their age.

Variables	Number of patients (n)	(%)
Age		
<20	50	18.72
20-40	163	61.04
41-60	50	18.72
>60	4	1.49

From the study it is clear that the most of patients has Ear infection followed by throat infection (**Figure 1**)

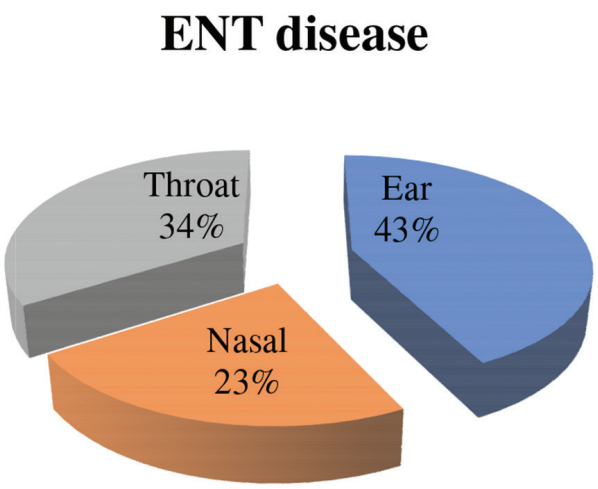

Figure 1. Distribution of patient according to the ENT Disease.

Altogether 834 drugs were prescribed and average number of drug per prescription was 3.12. Out of 834 drugs, total number of antibiotic prescribed was 278. Average number of antibiotic per prescription was found to be 1.041 (**Table 2**).

Table 2. Distribution of drugs/antibiotics per prescription.

Total number of drugs	Average number of drugs per prescription	Number of prescribed antibiotic	Average number of antibiotic per prescription
834	3.12	278	1.041

From the data obtained it is clear that the mostly prescribed antibiotic was combination of Amoxicillin and clavulanic acid tablet which was given by oral route and the least common antibiotic was neomycin given by topical route of administration (**Figure 2, 3 & 4**). The result also indicates that the most common antibiotic prescribed for the ENT disease belongs to the penicillin group followed by Macrolides (**Table 3**).

Table 3. Important classes of antibiotic drugs that were commonly prescribed.

Class of antibiotics	Number of patients	%
β-lactams	138	51.68
Macrolides	72	26.96
Azole antifungals	34	12.73
Aminoglycosides	23	8.61

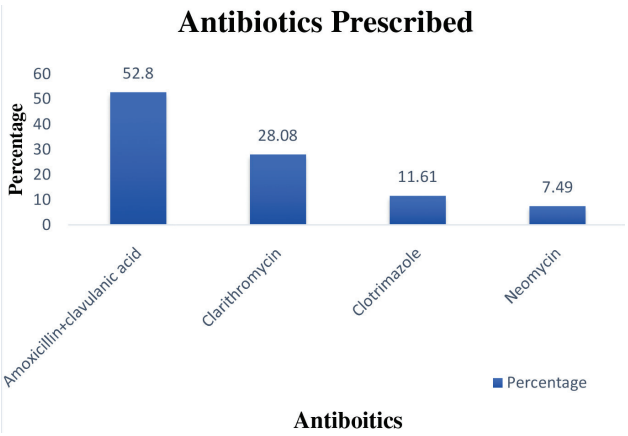

Figure 2. Distribution of Pattern of Antibiotic Prescribed.

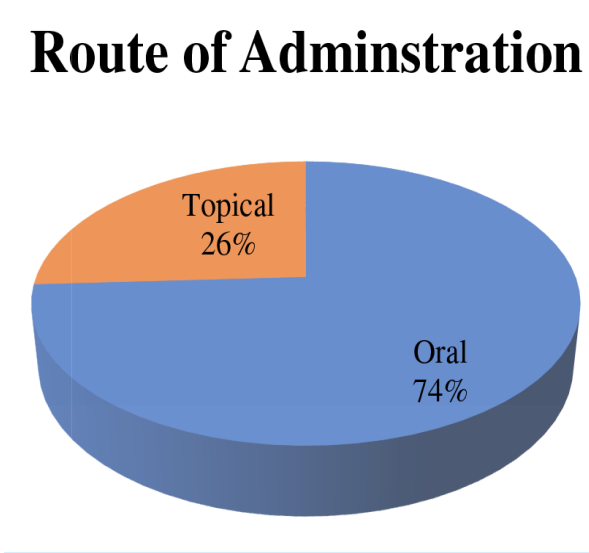

Figure 3. Distribution of patient according to the route of administration.

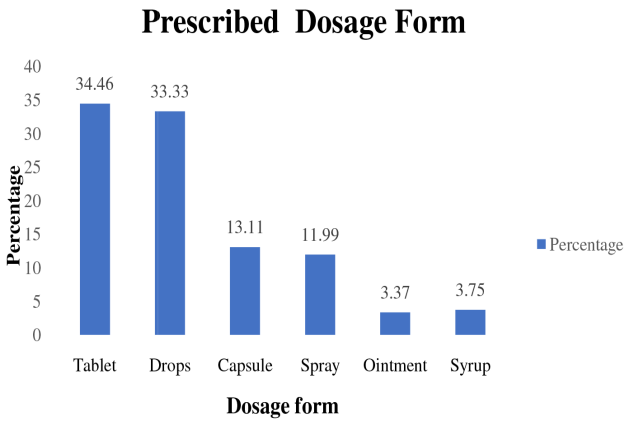

Figure 4. Distribution of patient according to the route of administration.

In this prospective study, medicines were prescribed from the essential medicine list of Nepal (**Table 3**), 72 % of antibiotics were prescribed from the essential drug list. Most of the antibiotics were prescribed by brand names (92%).

Table 4. Distribution of prescribed drug according to essential medicine list of Nepal. n=267

Type of prescribed drugs	Number of patients	Percentage
Essential	193	72.28
Non-essential	74	27.72

The adjuvant drugs commonly prescribed besides antibiotics was nasal decongestant (44.19 %) followed by Antihistamines (27.71%) to subside the symptoms (**Figure 5**).

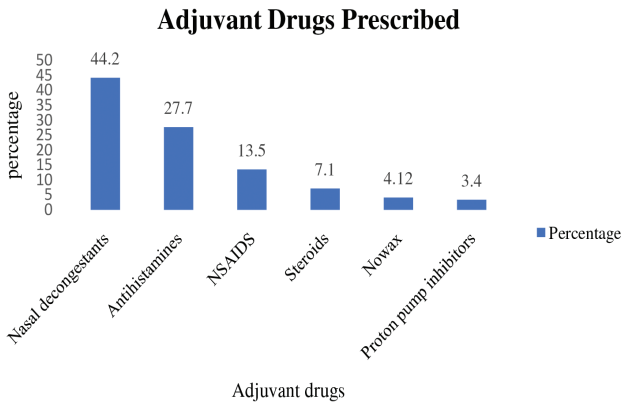

Figure 5. Percentage of other concomitant medications prescribed with antibiotics.

DISCUSSION

Irrational use of antibiotics has resulted in the development of drug resistance in the community. It is very essential to analyze and monitor the prescribing pattern of drugs from time to time. Prescribing pattern studies helps to understand the rational use of medicines and general trends and approach of physicians towards ENT infections. In general, approach to ENT infections are mostly empirical and main objective of antibiotic is to cover most likely pathogens. The central priority of any health care system is to provide right medicine to the right person at the right time.[7]

The present study indicates the prescribing pattern of antibiotics in outpatients of ENT. In this study WHO core prescribing indicators was used to assess the prescribing pattern of antibiotics in ENT infections.

A total of 267 prescriptions were analyzed and the demographic characteristics showed that ENT infections were more common among males compared to females. In a similar study

conducted by Ain et al and Suman et al it was reported that male outpatient consultation with ENT infections was more than female patients. Higher rate of ENT infections among males may indicate increased exposure to air pollution which may be due to higher working male population. [8,9] Most common ENT infections encountered in OPD was ear infections followed by throat infections and then infection of nose which is similar to study conducted by Vanitha. M et al in which ear infections were most commonly encountered in ENT outpatients.[10]

Majority of patients in our study were in the age group of 20 - 40 years followed by <20 and 41-60 years of age. The total number of drugs prescribed was 834 and the average number of drugs per prescription was 3.12 which indicated the trend towards poly-pharmacy. In other similar study conducted by Deshmukh et al, also it was found that the people of age group 20-40 years most suffered from ENT infections and the average number of drugs per prescription was 3.57. [11]

The average number of antibiotics per prescription was found to be 1.04 in our study which is similar to the result of study conducted by pal et al.[12] Most commonly prescribed antibiotic was combination of amoxicillin and clavulanic acid followed by clarithromycin ear drop and topical neomycin. Most common class of antibiotics prescribed was β lactams followed by macrolides. IN a similar study conducted by khan et al most common class of antibiotics used was B- lactams and commonly prescribed β-lactam was amoxicillin + clavulanic acid.[13] This indicates the pattern of use of broad spectrum penicillins due to increase in antibiotic resistance.

In our study most common routes of administration of antibiotics was oral followed by topical application. Commonly prescribed topical preparation was clotrimazole ear drops. Most commonly used dosage form was tablets followed by ear drops. No drugs were used by parenteral route. Similar study conducted by Padwal et al reported most commonly prescribed drugs were oral followed by topical route. [14]

In present study it was found that most of the antibiotics were prescribed by brand names rather than generic name indicating extensive use of brand names by physicians in outpatients which is similar to survey conducted by Padwal SL et al. [14] WHO recommends 100% prescribing by generic name as a safety precaution for patients as it identifies the drug and enables better communication between health care providers. [15] From the study it was found that 72.28% of the drugs prescribed in ENT department were from essential drug list of Nepal. In a similar study conducted by Deshmukh et al 72.46% of medicines were prescribed from essential drug list. Prescribing drugs from the essential drug list provides a framework for rationale prescribing.[11]

IN our study it was found that apart from antibiotics, adjuvant drugs prescribed commonly was, nasal decongestants, anti-histaminics, NSAIDs, nowax, topical steroids and proton pump inhibitors which is similar to the study conducted by Suman et al.[9] Prescribing drugs like anti-histaminics and nasal decongestants indicates the need to provide symptomatic relief to patients.

CONCLUSIONS

The present study is focused on the prescribing pattern of the antibiotic in ENT outpatients of the of Tertiary Care Hospital in Bharatpur, Nepal and shows that the penicillin group of antibiotic were being prescribed in most of the patients for the treatment of various acute and chronic ENT diseases. Most commonly prescribed antibiotic was combination of Amoxicillin and Clavulanic acid in the tablet form via oral route. Brand

prescribing was predominant over the generic prescribing. Most of the drugs prescribed were from essential drug list of Nepal. This study showed rationale prescribing pattern of antibiotics for ENT infections. Antimicrobial drugs prescribing by generic name usually from existing essential drug list or formulary should be encouraged for rational drug therapy. Time to time evaluation and study of prescribing pattern in outpatients should be done to improve and modify the pattern for healthcare benefits of patients.

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