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Original Research Article

Prescribing pattern of antibiotics in ENT outpatient department in a tertiary care teaching hospital, Salem

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ABSTRACT

Background: It is essential to evaluate the patterns of antimicrobial drugs prescribing, to know the microbial susceptibility and resistance to antimicrobial drugs. In this study, the Prescribing pattern of antibiotics was done after sensitizing about Standard treatment guidelines (STG) and using WHO core prescribing indicators.
Methods: This observational study was conducted from January 2022 to June 2022. The Prescriptions of patients with ENT infections were collected. Data of age, sex, type of ENT infections and drugs were noted in case record form and evaluated. Details regarding WHO Core indicators for prescription were collected.
Results: 340 prescriptions were analysed. Commonly prescribed antimicrobial drugs belonged to penicillin group (57.6%) and Macrolides (27%) and Quinolones (14.1%) and Cephalosporins (3.5%). WHO core indicators- the antimicrobial drugs prescribed were 1.0 per prescription. Most of the dosage form were oral tablets (93.3%), followed by injections (4.7%). The antimicrobials were prescribed by Generic name 83.6%. All the drugs are available from Essential drug list. The average number of drugs which were prescribed per prescription including antibiotics was 3.08.
Conclusions: In this study, Standard treatment guidelines (STG) for the ENT infections were followed and the antimicrobial drugs prescribed were Penicillin followed by Macrolides, and Cephalosporins. WHO core prescribing indicators like, the prescribing in the generic name was found to be satisfactory, and the average number of drugs per prescription were as per WHO recommendation.

Keywords: Antimicrobial drugs, Prescribing pattern, Standard treatment guidelines, WHO core drug prescribing indicators

INTRODUCTION

One of the pressuring problems of the doctors and health administrators of many countries is ensuring rational drug use. WHO 1985 defined rational use of drugs as follows: Patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, and at lowest cost to them and their community. Success of treatment largely depending upon the physicians ability to diagnose major health problems in patients, Selection of correct drug, dosage form and routes of administration, probable toxicity, drug interaction and prevention of unnecessary or dangerous duplication therapy.[1] Drug utilization research defined by World Health Organization (WHO) in 1977 as "the marketing, distribution, Prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences.[2] The drug utilization studies facilitate rational prescribing of drugs in populations and relate to the effects of drug use, beneficial

or risks.[3] Inappropriate drug use result in patient morbidity and Mortality.[4] Microbial diseases cause morbidity and mortality among people worldwide, particularly among lower income groups.[5] 20-40% of infections among patients attending outpatient departments (OPD) are Upper respiratory tract infections (URTI)s like Pharyngitis, Nasopharyngitis, tonsillitis and otitis media.[6] Several studies on drug utilization done in URTIs highlight the frequent usage of antimicrobial drugs.[7]

In OPD, 80 to 90% of volume of antimicrobial drugs use and expenditure incurred.[8] Antimicrobial drugs usage occurring in OPD, especially for the prescribing in URTIs. This also contributes to increase consumption of antimicrobial drugs especially in the outpatient settings, increasing the development of anti-microbial Resistance (AMR). Pattern of AMR according to the local patterns of antimicrobial drugs prescribing and its usage.[9] Hence it is essential to collect data, monitor and evaluate the patterns of antimicrobial drugs prescribing and usage periodically from various regions in India. It helps to know the patterns of microbial susceptibility and resistance to various antimicrobial drugs. Selection of antimicrobial drugs should be based on standard treatment guidelines (STG)/protocols.[10] Orientation regarding the STG should be done to the clinicians regularly. For drug utilization studies, WHO has issued guidelines to use core indicators.[11] There are Less studies only based on WHO core indicators.[12] So in the present study, Prescribing pattern of antimicrobial drugs was done after sensitizing about Standard treatment guidelines (STG) and using WHO core drug prescribing indicators.

Aim was to analysed the prescribing pattern of in ENT OPD in tertiary care hospital -VMKVMCH, Salem. Objectives were to find out the pattern of prescribing of antimicrobial drugs in ENT OPD after orientation of clinicians about Standard treatment guidelines (STG) and to analysed the prescriptions, based on Core drug prescribing indicators of WHO.

METHODS

Study design

It is a prospective, cross sectional, observational study was conducted from January 2022 to June 2022. by department of Pharmacology and department of ENT in VMKVMC and H, Seeragapadi, Salem.

Ethical considerations

Institutional ethical committee clearance (IEC) approval and permission from Department of ENT were obtained.

Inclusion criteria

Age group of patients is from 20 to 60 years, with various infections who attend ENT of VMKVMC and H were included in the study along with the drug prescriptions.

Exclusion criteria

It includes follow up prescriptions, Secondary wound infection, Readmission patients.

Sample size

A total 340 prescriptions were analysed in the period of 6 months.

Study procedure

The data collected from prescription of the patients leaving the OPD and will be recorded in a separate predesigned case report form.

Data collection

The prescriptions of patients prescribed with one or more antimicrobial drug were observed for data. Demographic details of the patients, prescription details, Name of the individual drugs, any fixed combination be prescribed were added. The dose, dosage form, dosing schedule, duration of treatment was collected and Details regarding WHO Core prescribing indicators like the average number of drugs per prescription, the average number of antibiotics per prescription, the average duration of antibiotic drug treatment and percentage of antibiotics prescribed by generic name were collected.[14]

Statistical analysis

The data entered in Excel sheet and analysed by descriptive statistics using SPSS Software.

RESULTS

Age and gender distribution

340 prescriptions obtained from the ENT OPD and analysed. Distribution of gender, males with 52.6% of prescriptions in comparison to 48.4% prescribed among females (Table 1).

44.7% of the prescriptions were prescribed for patients from the age group of 40-60years, followed by 41.1% with age of 20-40 years (Table 1). ASOM was the most common infections, followed by acute pharyngitis. Tonsillopharyngitis was the combined type of infections (Table 2).

Analysis of antimicrobial drugs

Antimicrobial drugs prescribed were 1.0 per prescription. All the patients received a single antibiotic. Most of the dosage form were oral tablets (93.3%), followed by injections (4.7%). Duration of the antimicrobial drugs prescribed was for 1 to 5 days. Commonly prescribed antibiotics belonged to penicillin group (57.6%) and Macrolides 27%, fluoroquinolones (14.1%) and

Cephalosporins (3.5%). Most common prescribed antibiotic and FDC was Amoxicillin with clavulanic acid 51.1%. Second common prescribed antimicrobial drugs were azithromycin (Table 3 and Figure 1).

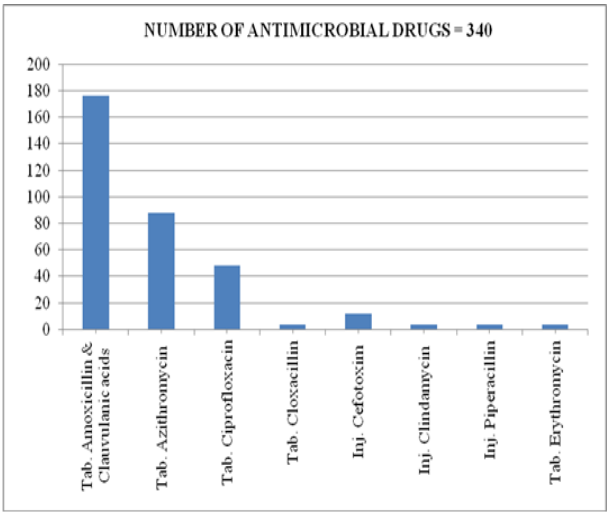

Figure 1: Distribution of antimicrobial drugs.

Table 1: Distribution of patients (age and gender).

Age (in years)			Gender	
1-20	**21-40**	**41-60**	**Male**	**Female**
48	140	152	180	160

Table 2: Type of ENT infections.

S. no	Infections	No. of patients (n=340)
1	Chronic suppurative otitis media (CSOM)	88
2	Acute pharyngitis	48
3	Acute suppurative otitis media (ASOM)	36
4	Acute mastoiditis	44
5	Chronic tonsillitis	40
6	Tonsillopharyngitis	32
7	Acute tonsillitis	16
8	Acute sinusitis	08
9	Chronic sinusitis	08
10	Epiglotits	12
11	Ludwig's angina	04
12	Maligant otitis externa	04

WHO cores indicators

The antimicrobial drugs were prescribed by generic name were 83.6%. All the drugs from essential drug list. The number of drugs prescribed per prescription including antibiotics was 3.08. Of the 340 prescriptions, mostly three drugs prescribed (Table 4). 83% based on standard treatment guidelines (STG).

Adjuvants prescribed

Along with antibiotics, non-steroidal anti-inflammatory drugs (NSAIDs), Nasal decongestants, Antihistamines, H2 blockers and vitamins were prescribed.

Table 3: Number of antimicrobial drugs.

S. no.	Prescribed antimicrobial drugs	No. of antimicrobial drugs
1	Tab. Amoxicillin and Clauvulanic acid	176
2	Tab. Azithromycin	88
3	Tab. Ciprofloxacin	48
4	Tab. Cloxacillin	04
5	Inj. Cefotoxim	12
6	Inj. Clindamycin	04
7	Inj. Piperacillin	04
8	Tab. Erythromycin	04

Table 4: WHO core indicators for prescription.

S. no.	Core indicators	(%)
1	Average number of drugs per encounter	3.08
2	Average number of antimicrobial drugs	1.05
3	The percentage of drugs prescribed by generic name	83.6
4	The percentage of encounters with injections prescribed	4.07
5	The percentage of drugs prescribed from essential drug list	100

DISCUSSION

In this drug utilization study, the common ear infection was CSOM (chronic suppurative otitis media). Among the nose infection, both acute and chronic sinusitis, predominated. Bacterial pharyngitis was common throat infection, followed by tonsillitis. In the previous study by Dhanasekaran SV et al the distribution of diseases was similar.[13] Patients with age 20-40,40-60 years were commonly prescribed antibiotics, and the prescriptions belonged to the paediatric age group were less, which is contradictory to the previous study by Srinivasa J et al in which the number of prescriptions belonged to the geriatric age group were less.[14]

52.9% of the prescriptions were prescribed among male patients in comparison 47.1% in female patients which is contradictory to the previous studies by Srinivasa J et al Suman et al, in which antimicrobial drugs were prescribed more among male patients.[14,15] As per Indian Standard treatment guidelines (STG), in our study, average number

of antibiotics prescribed per prescription was 1.0, which was more in the study done by Suman et al (1.69) Surendra et al.[15,16] Most commonly prescribed group of antibiotics were penicillins followed by Macrolides, fluoroquinolones and cephalosporins. In the previous studies by Patel DA ciprofloxacin followed by amoxicillin were prescribed.[12] As per standard treatment guidelines (STG), in our study, the commonest prescribed penicillin group of antibiotics were combinations of amoxicillin with clavulanic acid, which is same in previous study by Srinivasa et al and Kishore et al.[14,17]

WHO Core drug prescribing Indicators

Other drugs like NSAIDs, H1 antihistaminic, H2 blocker, and vitamins were prescribed concomitantly for symptomatic relief. So, the average number of drugs per encounter was 3.08 which is as per the recommendation of WHO (<3/ prescription) and no polypharmacy. In this study, antimicrobial agents prescribed by the generic names were 83.6%. this may decrease expenditure on drugs. In our study, antimicrobial agents were used are included in the National List of Essential Medicines (NLEM) 2015.[18] Antibiotic prescription pattern varies from region to region, which is due to various factors such as the infecting organisms and anti-microbial susceptibility, physician choice and costs.[19]

To prevent the antimicrobial resistance, standard treatment guidelines (STG), are used in which the antibiotics for the ENT infections are penicillin followed by Macrolides and cephalosporins, which is followed in our study. Fluoroquinolones were used in CSOM patients for which no need of antibiotics as per standard treatment guidelines (STG). Our study, number of antimicrobials of each class prescribed, the combinations of antibiotics prescribed for each type of infection were analysed. Standard treatment guidelines (STG), should be used to guide hospitals and doctors to develop antibiotic policy. This decreases the chance of antimicrobial resistance and motivate cost effective utilization of antimicrobial agents. To improve the rational prescribing, WHO Core Indicators for the prescription were used.

CONCLUSION

In this study, Standard treatment guidelines (STG) for the ENT infections were followed and the antimicrobial drugs prescribed were Penicillin followed by Macrolides, and Cephalosporins. WHO core prescribing indicators like, the prescribing in the generic name was found to be satisfactory, and the average number of drugs per prescription were as per WHO recommendation.

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