

DRUG UTILIZATION TRENDS IN ENT OUT PATIENT DEPARTMENT IN A TEACHING HOSPITAL**YADAV PRAMILA^{*1}, KANASE VANITA², LACCHIRAMKA PREETY¹
AND JAIN SIDDHARTH¹**¹Department of pharmacology, Dr.D.Y.Patil Medical College, Navi Mumbai, Maharashtra, India.²Gahlot Pharmacy College, Navi Mumbai, Maharashtra, India.** Corresponding author* drpramilayadav10@yahoo.co.in**ABSTRACT**

The primary aim of this study was to generate up to date information on drug use in the ENT outpatient service of our hospital, indications for use, and aptness of its use. A total of 102 prescriptions were randomly audited at varying time interval from the department of ENT during a four month period. The data was collected in customized Performa. The ENT OPD patients constituted 102 (3.42%) of the total patients attending the hospital OPD between the period of June 08 to Sept 08. Maximum cases were of otitis media 21(20.51%), wax 19 (18.62%), tonsillitis 16 (15.68%), infective rhinitis 15(14.7%). The average number of drugs used in the prescriptions was 3.28%. None of the drugs were prescribed by generic name. All of them were prescribed with trade names. The topical preparations were the most commonly prescribed drugs. The use of Fixed drug combinations was 75.49%. The average cost per prescription was 105. There was no generic prescribing. Educational sessions for the doctors at different levels to encourage prescribing by generic names and on correct writing of prescriptions may be considered. Studies covering a larger number of patients and for a longer time period are required. A greater number of patients can be studied, seasonal variations can be overcome and drug utilization can be measured quantitatively.

KEYWORDS

Drug utilization studies, topical, antimicrobials, NSAIDs, Prescription audit.

INTRODUCTION

Study of drug utilization trends are powerful, exploratory tools to ascertain role of drugs in medical practice. They create a sound and economic basis for health care. Studies on the process of drug utilization focus on the factors related to the prescribing, dispensing, administering, and taking of medication, and its associated events, covering the medical and non-medical determinants of drug utilization, the effects of drug utilization, as well as studies of how drug utilization relates to the effects of drug

use, beneficial or adverse.^{1,2} The characterization of drug utilization may be extended linking prescription data to the reasons for the drug prescribing. They include the concept of appropriateness³ that must be assessed relative to indication for treatment, concomitant diseases (that might contraindicate or interfere with chosen therapy) and the use of other drugs (interactions).

Drug prescribing for outpatients is done by various types of health professionals, and outpatient clinics deliver therapeutic service to a large segment of the patients. It follows that

assessment of prescribing pattern in these important medical care facilities is of obvious relevance to identify problems regarding rational use and to propose interventions. The objective of the present study was to evaluate and compare patterns of drug prescribing practiced.

The primary aim of this study was to generate up to date information on drug use in the ENT outpatient service of our hospital and indications for use, aptness of its use. This would encourage good evidence based practice and facilitate appropriateness of drugs. Hence the present study was carried out in the ENT OPD.

MATERIALS AND METHODS

The study was carried out over a four month period from at a Teaching hospital, a tertiary care hospital. Patient and drug data was recorded from 102 ENT out patients. The data was collected in customized Performa in the form of a audit questionnaire. It contained patient particulars, diagnosis, investigations, drug details and information from the prescriber regarding the indication for prescribing agents (both topical and oral), underlying infection, duration of therapy and details of any concomitant medications. Cost of the individual prescriptions worked from prices as given in Indian Drug Review. The information compiled and analyzed in consultation with ENT specialist.

The objectives of the study were to:

- 1) Obtain information on demographic characteristics of the patients selected for analysis.
- 2) Collect information on the diagnosis, number of drugs prescribed and calculate the mean \pm SD number of drugs per prescription.
- 3) Calculate the percentage of drugs prescribed from the Essential drug list, percentage of fixed dose combinations (FDCs), prescribed, the percentage of drugs prescribed by generic name and percentage of encounters where antibiotics were prescribed.
- 4) Calculate cost of drugs per prescription (mean \pm SD)

5) Analyze the prescriptions for completeness of information like the presence of OPD number, name, age and sex of patient, diagnosis, name, dose and duration of prescribed drugs.

RESULTS

Demography

The ENT OPD patients constituted 102 (3.42%) of the total patients attending the hospital OPD between the period of June 08 to Sept 08. The analysis of demographic data showed that of 102 patients (45) were female and 55 were male. In two prescriptions the sex was not written.

Prevalence

The incidence of ear affections were the maximum 61(50.8%), followed by throat, 32 (31.37%) and least were nose 27(26.47%). The various diagnosis for the ear diagnosis were otitis media 21(20.51%), wax 19 (18.62%), otomycosis 14 (13.72%), foreign body 3 (0.2%), trauma 1(0.9%), furunculosis (1 (0.9%), Eustachian catarrh 1 (0.9%), chronic otitis media 1 (0.9%). The throat affections 32 (31.37% were tonsillitis 16(15.68%), pharyngitis 5 (4.9%), mouth ulcers 6(5.88%) The distribution of nose affections were infective rhinitis 15(14.7%), allergic rhinitis 5(0.49%), sinusitis 7(0.068%),. Maximum cases were of otitis media 21(20.51%), wax 19 (18.62%), tonsillitis 16(15.68%), infective rhinitis 15(14.7%).

Average number of drugs prescribed

The average number of drugs used in the prescriptions was 3.28%. 70 prescriptions contained 3 drugs, 20 prescription had 4 drugs. 7 prescriptions had 5 drugs. 5 prescriptions had 2 drugs only. None of the drugs were prescribed by generic name. All of them were prescribed with trade names

The common categories of drugs prescribed to ENT outpatients are as shown in the table no:1

Table no 1
Drugs prescribed

Drug	N (%)
Topical preparation	90(26.70%)
NSAIDS	80(23.73%)
Antiallergics	62(17.80%)
Antibiotics	60(17.80%)
multivitamins	30(8.9%)
Anti ulcers	15(4.451%)

Topical preparations

The topical preparation used were: gentamicin 20(5.4%), ciprofloxacin 4(1.18%), Clotrimazole 2(0.59%), steroid combination drops 9(2.67%) (dexamethasone, betamethasone in combination with neomycin, clotrimazole. The ear softeners used were usually combination of paradichlorobenzene, Benzocaine, turpentine oil 19(5.63%). Antiseptic mouth washes were prescribed to 26 (7.71%) cases.

Antiallergics

The antiallergics used were as given in the following table No: 2

Cetrizine 6 (1.78) , Fexofenadine 7 (2.07) , Loratidine 5(1.48) , Chlorpheniramine 2(0.59), Pheniramine 1 (0.29). Many preparations contained antihistaminics in combination with paracetamol, phenylephrine malelate or pseudoephedrine. 41(4.15%)

Table no. 2
Antiallergics

Name of the drug	N(%)
Cetrizine	06 (1.78)
fexofendine	07 (2.07)
Lortidine	05(1.48)
chlorpheniramine	02(0.59)
Pheniramine	01(1.29)
Total	21

Analgesics

The analgesics used were Ibuprofen + Paracetamol 12, Nimesulide 09, Diclofenac + Paracetamol 16, Paracetamol 02. Some NSAIDs used were in combination with antihistaminics and decongestants. 41(4.15%)

Table no 3
Analgesics

Analgesics	No. (%)
Ibuprofen+Paracetamol	12 (3.56)
Nimesulide	09 (2.67)
Diclofenac+Paracetamol	16(4.74)
Paracetamol	02 (0.87)
NSAIDS + Antihistaminics & Decongestants	41(4.15%)

Antibiotics

The antibiotics commonly prescribed were Macrolides 26, Amoxicillin 14, Fluoroquinolones

12, Cephalosporin 06. The Macrolides commonly prescribed were Azithromycin and Roxithromycin. Sparfloxacin was the common

Fluroquinolone used. Ciprofloxacin was used in 4 cases. Amoxicillin was used alone, and in combination with cloxacillin, and Clavulanic

acid. The cephalosporin's used were cefuroxime, cefaclor. Tinidazole was prescribed in two subjects.

Table no 4.
Antibiotics prescribed

Name of Drug	N(%)
1. Macrolides	26(07.71)
Azithromycin	20(05.93)
Roxithromycin	06(01.78)
2. Fluroquinolones	12(03.56)
Sparfloxacin	08(02.37)
Ciprofloxacin	04(01.18)
3. Penicillins	14(04.15)
Amoxicillin	06(01.78)
Amoxicillin+cloxacillin	02(05.59)
Amoxicillin+ Clavulanic acid	06(01.78)
4.Cephalosporins	06(01.78)
Cefuroxime	04(01.18)
Cefaclor	02(00.59)
5.Tinidazole	02(00.59)

Fixed drug combinations. (FDC) The FDC most commonly used were Ibuprofen + Paracetamol (15.58%), and Diclofenac+ Paracetamol (20.77%)

Table no 5
Fixed drug combinations

FDC	No.(%)	%
Ibuprofen +paracetamol	12(12.58)	15.58
Diclofenac+ paracetamol	16(20.77)	20.77
NSAIDS+ Decongestants	41(53.24)	53.24
Amoxicillin + Cloxacillin	02(02.59)	02.59
Amoxicillin+Clavulanic acid	06(07.79)	07.79
Total		77 (75.49%)

Duration of the prescription

The minimum duration of the prescription was 7.23 days. The duration for 28 prescription was for 10 days. 50 prescriptions were prescribed for 7 days. 12 were given for 4 days and another 12 for 5 day.

Table no 6
Duration of the prescription

No. of Prescriptions	Average no. of days
28	10
50	07
12	04
12	05

Cost

The total amount spent on these prescription was 10,790. The average cost per prescription was 105. Antibiotics accounted for 39% of the total cost followed by topically administered drugs 29%, antiallergics 12% and analgesics (20%).

Steroid was given in 3.93% of the cases. The Steroids was given for 15 days and tapering was advised.

Eleven prescriptions had various anomalies. The diagnosis was not mentioned in 7 prescriptions (6.83%) while the duration of prescription was absent in 4 (3.9%). However, the frequency and the quantity of the individual drug prescribed were written in all prescriptions.

DISCUSSION

A prescription by a doctor may be taken as an indication of the doctors' attitude towards the disease and the role of drugs in its treatment. The mean \pm SD number of drugs in our study was 3.284. The average (mean) number of drugs per prescription is an important parameter while doing a prescription audit. A hospital based study in India had reported a mean number of two drugs.⁴ The mean number of drugs prescribed in this study is more was more than other studies reported in the literature.^{5,6} it is preferable to keep the mean number of drugs per prescription as low as possible since higher figures always lead to increased risk of drug interactions, development of bacterial resistance and increased cost.^{7,8}

The number is however, higher than that reported in a previous study.⁹

Maximum cases were of otitis media 21(20.51%), wax 19(18.62%), tonsillitis 16(15.68%), infective rhinitis 5(14.7%). In

another study conducted by Das BP et al most patients reported with URTI (32.56%), CSOM (18.3%), sinusitis (6.28%), tonsillitis (5.75%), furuncle (4.71%). Pharyngitis (3.66%), abscess (3.14%), ASOM (2.61%) and miscellaneous (19.37%). The patients were diagnosed clinically in 90 cases and in 59 cases both clinical examination and relevant investigations {radiological (61%) & laboratory} (10%) were used.

The common categories of drugs prescribed to ENT outpatients were topical preparation 90(26.70%) NSAIDS: 80(23.73%), antiallergics 62(17.80%), antibiotics: 60(17.80%). This study shows a high use of topical preparations, which seems justified in the ENT OPD. The ear softeners used were usually combination of paradichlorobenzene, Benzocaine, turpentine oil 19(5.63%). Steroid combination drops used were 9(2.67%) was limited and justified for the condition.

The antiallergics used were Cetrizine 6 (1.78), fexofenadine 7 (2.07), loratidine 5(1.48), chlorpheniramine 2(0.59), Pheniramine 1 (0.29). Cetrizine, Fexofendine, loratidine which used are maximum from the second generation non sedating antihistamines.

In this study, it was observed that the average prescribing frequency of antimicrobials per prescription was mostly one (60(17.80%) and two antimicrobials in 6.14% prescriptions. It was further observed that an average of 1.4 AMAs were prescribed to patient with infective etiology, which is low. Mostly, the antimicrobials were prescribed for diseases like otitis media 21(20.51%), tonsillitis 16(15.68%), pharyngitis 5 (4.9%), infective rhinitis 15(14.7%), allergic rhinitis 5(0.49%), sinusitis

7(0.068%). The use in these conditions seems justifiable as most of these conditions are viral or bacterial in origin. Schwartz et al pointed out that despite the concern over injudicious use of AMAs in acute purulent rhinitis; it was observed 77% of the prescribers continue to prescribe AMAs in this condition.¹¹

The antibiotics commonly prescribed were Macrolides 26, Amoxicillin 14, Fluroquinolones 12, Cephalosporin 06. The macrolides commonly prescribed were Azithromycin and Roxithromycin. Sparfloxacin was the common Fluroquinolone used. Ciprofloxacin was used in 4 cases. Amoxicillin alone, in combination with cloxacillin, in combination with Clavulanic acid. The cephalosporins used was cefuroxime, cefaclor.. Tinidazole was prescribed in two subjects.

Expensive drugs i.e Azithromycin 20(05.93%), Cephalosporins 06 (01.78%) were also prescribed which escalated the cost of total therapy. Ciprofloxacin was prescribed in 04 (1.18%) in the subjects though low but is generally not indicated in treatment of ENT infections. Amoxicillin+ cloxacillin was given in 02 patients (05.59%) which though is low but is not a rational FDC as per WHO guidelines.

The use of FDCs 77 (75.49 %) is much higher than that reported previously.^{12, 13, 14} However, our study was confined to the ENT OPD while the Pakistani and the Indian studies were carried out in different OPDs. It will be difficult to compare our data with that obtained from the studies.

The commonly used FDC were NSAIDS+ Decongestants 41 (53.24%), Diclofenac + Paracetamol 16 (20.77%), and Ibuprofen + Paracetamol 12 (15.58 %). These figures seem quite appropriate for a ENT OPD.

In our study, 30(8.9%) prescribed drugs were multivitamins and minerals. In a previous study conducted in all the OPDs of the Manipal Teaching hospital, multivitamin preparations constituted 9.65% of the drugs prescribed.¹⁵ However, due to different patient populations the values are not comparable.

The average cost per prescription was 105. This is the initial cost of the prescription the duration being for 7 days. Antibiotics accounted for 39% of the total cost followed by topically administered drugs 29%, antiallergics 12% and analgesics (20%). Steroid was given in 3.93% of the cases.

The minimum duration of the prescription was 7.23 days.

None of the drugs were prescribed by generic name. All of them were prescribed with trade names. Generic prescribing is to be encouraged as it works out to be cheaper for the patient and the possibility of drug errors is reduced.

The choice of drugs, the duration and the route chosen were appropriate in the majority of cases. The appropriateness was determined by the authors after consulting different sources in the drug information center and the college library.

Steroid (3.92%) was given only in selected cases, according to the condition diagnosed and tapering was advised in these cases.

Our study had a number of limitations. The study was carried out over a three month period and seasonal variations in disease and prescribing patterns may not have been taken into account. One hundred and two patients/prescriptions were randomly selected for analysis and these may not have been representative of the patient population attending the ENT OPD during the study period.

The number of drugs used in the prescriptions is low. The patients' knowledge of the correct dose, proper time to take the medicine, whether the medicine is to be taken before or after food and the proper method of applying topical preparations were not ascertained. The prescribers were aware of the study and this may have influenced prescribing habits. Percentage of encounters with an antibiotic

and an injection prescribed was low. This is a welcome sign and has to be encouraged. The use of FDCs was high. Anomalies were noted in some of the prescriptions. Educational interventions to improve prescribing for doctors at different levels may be required.

Such studies are necessary to obtain baseline data on drug use and create a database for comparison with future studies

Implementation of educational program's to change the attitude of prescribers for improving drug utilization is the demand of present scenario. Standard therapeutic Guidelines can be formulated for the common ENT infections and followed universally; this would promote rational use of drug especially AMAs. Nevertheless, regular prescription audit monitoring with reviewing of prescribing pattern in all indoor and

outdoor patients at varying time interval in a particular location, would give the feedback on the rational use of drugs.

CONCLUSION

The mean number of drugs was low. There was no generics prescribed and efforts to encourage prescribing by generic name should be initiated. The average cost seems to be high. Percentage of encounters with antibiotic prescribed seems appropriate for the condition. This is a welcome sign and has to be encouraged. The use of FDCs was high. Educational interventions to improve prescribing for doctors at different levels may be required.

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