



## A STUDY OF PRESCRIPTION PATTERN OF DRUGS IN EAR, NOSE AND THROAT OUTPATIENT DEPARTMENT IN A TERTIARY CARE HOSPITAL OF WESTERN RAJASTHAN

### Pharmacology

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### ABSTRACT

**Background:** Diseases of ear, nose and throat (ENT) are among the most common causes of hospital visits globally, which affect all age groups with significant disability-adjusted life-year (DALY) of patient and contributes significantly to school and work absenteeism.

**Methods:** A prospective, cross-sectional, observational study was done for 6 months (Sept. 2019 to Feb. 2020). The study was done in the ENT OPD of MDM hospital, a tertiary care hospital associated with Dr. S. N. Medical College, Jodhpur for treatment of common ENT diseases. The data was analyzed in form of frequency and percentage.

**Results:** Total 782 prescriptions were analyzed. All 3278 drugs prescribed were in their generic names and from list of essential medicines (100%) for state of Rajasthan. Average number of drugs per encounter were found to be 4.19. Antimicrobials (24.87%) were most commonly prescribed (including oral, topical and parenteral route), followed by NSAIDs (23.39%), antihistaminics (15.33%), vitamin supplements (12.80%), anti-ulcer drugs (9.58%), nasal decongestants (4.92%), corticosteroids (3.84%), antiseptics (1.00%) and others (4.22%). Most commonly prescribed dosage form was oral, 2884 drugs were prescribed orally (81.74%) followed by topical route.

**Conclusion:** The use of the generic name was found to be satisfactory, but the average number of drug per prescription was high.

### KEYWORDS

Antimicrobials, ENT, Prescription pattern.

### INTRODUCTION-

WHO defines drug utilisation study as "The marketing, distribution, prescribing and use of drug in society, with special emphasis on medical, economical and social consequences." Drug use studies are helpful in providing feedback to the medical practitioners regarding prescribing, dispensing, administering, and also rational use of drugs<sup>1,2</sup>. Therefore, it is important to evaluate and monitor drug use patterns and make suitable modifications in drug prescription patterns to increase the therapeutic benefit and decrease the adverse effects of drugs to optimize medical services provided to patients<sup>3</sup>. Research in drug utilization aims at analyzing developmental trends of their usage at various levels in the primary health care system.

Prescriptions should contain essential drugs, which are easily available and almost free of cost at the government hospital pharmacies. WHO standards emphasize on essential drugs. Essential drugs satisfy the healthcare requirements of the majority of the population; as a result, these medications should be available at all times in sufficient amounts and in appropriate dosage forms, at a lowest price the community can afford<sup>4</sup>.

Diseases of the ear, nose, and throat (ENT) are among the most common causes of hospital visits globally and are responsible for significant amount of morbidity and to some little extent mortality as well. ENT diseases affect all the age groups ranging from children to adults with significant disability-adjusted life-year (DALY) of patient<sup>5</sup>. ENT diseases contributes significantly to school and work absenteeism. Loss of hearing is very common especially in children due to upper respiratory tract infections (URTIs). Respiratory tract infections have high and frequent incidence and thus are among the most important human health problems<sup>6</sup>.

### MATERIALS AND METHODS

This study was conducted in the department of Pharmacology in collaboration with department of ENT (OPD) of MDM hospital, a tertiary care hospital associated with Dr. S. N. Medical College, Jodhpur, Rajasthan.

### STUDY DESIGN:

It is a prospective, cross-sectional, observational and single center study for duration of 12 months.

### SAMPLE SIZE AND STUDY POPULATION:

The study population included patients attending ENT OPD of MDM hospital, a tertiary care hospital associated with Dr. S. N. Medical College, Jodhpur for treatment of common ENT diseases.

Sample size was calculated at 95% confidence interval and 4% absolute allowable error using the formula for sample size for estimation of a single sample proportion –

$$N = \frac{Z_{1-\alpha/2}^2 P (1 - P)}{E^2}$$

Where,

$Z_{1-\alpha/2}$  = Standard normal deviate for 95% confidence interval (taken as 1.96)

P = expected proportion of patient prescribed antibiotics (taken as 75% as per reference article)

E = allowable error (taken as 4%)

Sample size was calculated to be to be 470 patients, which was enhanced to 782 subjects.

### DATA COLLECTION:

Period of data collection was for a period of 6 months.

### INCLUSION CRITERIA:

Patients above five years of age to 60 years of age, of either gender suffering from any of the common and routinely noticed ENT infections, in particular, reporting at ENT OPD, M. D. M. HOSPITAL, DR S. N. MEDICAL COLLEGE, JODHPUR. Only those patients, whose gave informed consent were included in the study.

### EXCLUSION CRITERIA:

- Surgical and post-surgical cases of ENT diseases.
- Pregnant and lactating females
- Admitted/Inpatients were excluded
- Patients with only complaint of ear wax.

### STUDY METHOD:

Prior permission was taken from Institutional Ethics Committee. The ENT OPD was visited regularly, appropriate patients were selected and enrolled according to inclusion and exclusion criteria. Data was collected from patients' prescriptions and recorded on a pre structured case reporting form.

**STATISTICAL ANALYSIS:**

Data were recorded on Microsoft excel sheet. EPI-INFO version 7, which is a statistical software developed by Centres for Disease Control and Prevention (CDC) in Atlanta, Georgia (US) was used for statistical analysis.

**OBSERVATIONS AND RESULTS**

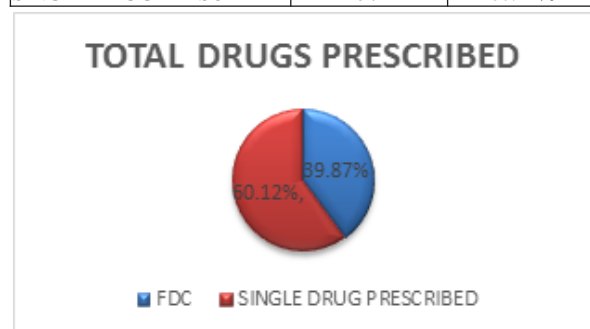
Total 782 prescriptions were included in this study, based on inclusion and exclusion criteria specified, to analyze drug prescription pattern in patients suffering from common ENT diseases. This study was conducted for a period of 6 months at ENT OPD of MDM hospital, associated with Dr. S. N. Medical College, a tertiary care teaching hospital, Jodhpur, Rajasthan.

**1. TOTAL NUMBER DRUGS PRESCRIBED-**

In this study, total number of drugs prescribed was 3278. Out of which, 1307 (39.87%) drugs were in the form of fixed dose combination and 1971 (60.12%) drugs were prescribed as single drug formulation. All 3278 drugs were prescribed in their generic names and from list of essential medicines (100%) for state of Rajasthan. Average number of drugs per encounter was found to be 4.19.

**Table 1: Total Number Of Prescribed Drugs**

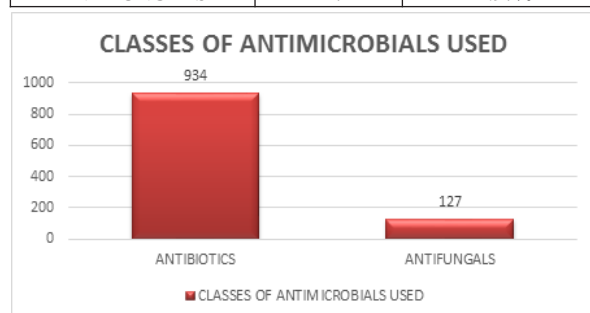
| TOTAL DRUGS PRESCRIBED (N=3278) | TOTAL DRUGS PRESCRIBED | PERCENTAGE |
|---------------------------------|------------------------|------------|
| FDC                             | 1307                   | 39.87%     |
| SINGLE DRUG PRESCRIBED          | 1971                   | 60.12%     |

**Figure 1: Percentage Distribution Of Prescribed Drug Form****2. CLASSES OF ANTIMICROBIALS USED (N=1061)**

Total number of antimicrobials prescribed in this study were 1061, out of which total number of antibiotics were 934 (88.03%) and antifungals prescribed were 127 (11.97%).

**Table 2. Classes Of Antimicrobials Used**

| ANTIMICROBIALS | NUMBER | PERCENTAGE |
|----------------|--------|------------|
| ANTIBIOTICS    | 934    | 88.03%     |
| ANTIFUNGALS    | 127    | 11.97%     |

**Figure 2. Classes Of Antimicrobials Used****FREQUENCY OF INDIVIDUAL ANTIMICROBIAL DRUG USED (N=1061)**

In this study, total number of antimicrobial drugs prescribed were 1061. Most frequently used were cefixime (27.99%), followed by ciprofloxacin (24.59%), amoxicillin + clavulanic acid (24.22%), clotrimazole (11.96%) and neomycin (4.71%). Other less frequently prescribed were cefpodoxime, fusidic acid, azithromycin, cefuroxime, levofloxacin, metronidazole, framycetin, linezolid, doxycycline, ofloxacin, ceftriaxone, amikacin and piperacillin + tazobactam

**3. ROUTE OF ADMINISTRATION OF DRUGS USED (N=1061)-**

In this study, most commonly prescribed dosage form was oral, 2884 drugs were prescribed orally followed by topical route. Among topically prescribed drugs, ear drops were most frequently used (489 times). Only 5 injectables were prescribed in this study.

**Table 3. Route Of Administration Of Drugs**

| ROUTE       | NUMBER OF DRUGS |
|-------------|-----------------|
| ORAL        | 2884            |
| TOPICAL     | 489             |
| INTRAVENOUS | 5               |

**DISCUSSION-**

Following parameters were studied in 782 prescriptions including name and group of the drugs prescribed, brand name/generic name of the drug, frequency of administration, route of administration of drugs, patient's age and gender details and culture and sensitivity patterns.

In this study, apart from antimicrobial agents, NSAIDs, antihistaminics, anti-ulcer drugs, corticosteroids and vitamin supplements were prescribed concomitantly for symptomatic relief, so the average number of drugs per encounter were 4.19, which is higher than the WHO recommendation of 1.6-1.8, indicating a trend of polypharmacy. A hospital-based study in India had reported average number of two drugs. Polypharmacy trend has also been reported by Yadav et al. Average number of drugs per prescription should always be kept low as it can lead to increase in unnecessary cost of treatment, higher possibility of drug-drug interactions, and also increase risk of adverse drug reactions and antibiotic resistance. Average antimicrobial prescribed per encounter was 1.35 similar to that reported in previous studies, for example, Das et al. reported 1.4 and Ain et al. reported 1.58. In this study, most commonly prescribed dosage form was oral, 2884 drugs were prescribed orally followed by topical route<sup>8,9</sup>. Among topically prescribed drugs, ear drops were most frequently used (489 times). Only 5 injectables were prescribed in this study. This lack of use of injections indicates physicians' awareness regarding adverse effects associated with overuse of injection practices. Similar findings were seen in the study done by Padwal et al and Sumalatha R et al<sup>10,11</sup>. In this study, total number of drugs prescribed were 3278. Out of which, 1307 (39.87%) drugs were in the form of fixed dose combination and 1971 (60.12%) drugs were prescribed as single drug formulation. All 3278 drugs were prescribed in their generic names and from list of essential medicines (100%) for state of Rajasthan as compared to the studies by Arcojit et al. and Admane et al in which 60% and 79.18% drugs were prescribed by generic names respectively<sup>12</sup>.

**CONCLUSION-**

In conclusion, it is clear that good prescribing practices have prevailed in the hospital where this study was undertaken and the treatment protocols are in consensus with the general trend and guidelines, although the preference in the choice of established antimicrobials and adjuncts might suggest a slight change.

Thus, the rationality in the usage of relevant antimicrobials with appropriate adjuncts is evident.

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