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Analytical Study of Prescribing Pattern of Drugs in ENT Outpatient Department of a Tertiary Care Hospital

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Abstract: *Accessibility and affordability to health care facilities is an important concern for the developing countries. It is the responsibility of the entire health system hence to prescribe, provide and dispense correct and appropriate drugs and avoid polypharmacy given the general socioeconomic status of our country. Evaluation and study of prescribing pattern will help in rational use of drugs directly leading to good patient compliance and dispersal of a good prescription containing the required details for patient's understanding and delivery of a rational treatment. A prospective, cross-sectional and observational study was conducted in the OPD of ENT department of RIMS,Ranchi . The prescriptions were collected over a period of 5 months. During the study period, prescriptions were collected from the patients visiting the OPD and these were evaluated on basis of a Performa containing various indicators. The data was then analyzed using descriptive statistics. The number of prescriptions collected was 321, among which 171 were male and 150 female patients. A total of 1068 drugs were prescribed. Antimicrobials were the most commonly prescribed drugs . Antihistaminic was the second most commonly prescribed drug. The present study highlights the pattern of drug prescribed in the ENT department. Combination of cefpodoxime and clavulinic acid was the most commonly prescribed antimicrobial. The majority of the drugs were prescribed by their brand name. All the drugs that were prescribed had their dose, dosage form and frequency mentioned in all the prescriptions.*

Keywords: *Prescribing pattern, Antimicrobials, ENT, Generic name.*

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I. Introduction

Diseases of the ear, nose and throat are very common not only in adults but also among the pediatric age group. Some of the common problems encountered are impacted ear wax, otitis media, tonsillopharyngitis, rhinitis and decreased hearing from one or both ear. [1] Majority of the diseases that we encountered during our study comes under the terminology URTI (upper respiratory tract infection) like otitis media, pharyngitis which occur due to either virus, bacteria or fungi whose treatment depends on the nature and course of disease. Majority of the respiratory tract infections (RTIs) are caused due to virus, the respiratory syncytial virus being the most common etiologic agent. These viral infection are self-resolving not requiring administration of any antibiotics. But when such viral infection are succeeded by sedondary bacterial infection like lower tonsillitis, otitis media, etc , administration of antibiotics are important and inevitable.[2] The main goal of the treatment is to thus relieve the symptoms, eliminate the infection and curtail the morbidity associated with the disease which can lead to absence from work in case of adults and absence from school in case of children.[3] Study of prescribing pattern of the drugs is an important aspect of medicine and healthcare system in total, the primary being rational and appropriate use of drugs. This in turn will lead to better patient compliance, low cost of treatment and very importantly it will help in curbing unnecessary antibiotics usage. It will also help in suggesting and preparing a rational therapeutic regimen for the maximum benefit of the patient and a better cost-effective healthcare system.[4] The current study will help in evaluating the drug prescribing pattern and appropriateness of drug use in outpatient department of ENT specialty.

II. Methods

An observational, prospective and cross-sectional study was conducted in the out-patient department of ENT at Rajendra Institute of Medical Sciences, Ranchi. The study was based on evaluation of the prescription collected from the ENT OPD over a period of 5 months.

Study duration : observational, prospective and cross-sectional study.

Study location : The study was conducted in the department of ENT of the tertiary care hospital Rajendra Institute of Medical Sciences, Ranchi, Jharkhand.
Study duration : February 2019 to June 2019.
Sample size : 321
Sample size calculation : All the patients attending the ENT OPD during this time was included in this study who met the inclusion criteria.
Inclusion criteria : Patients attending ENT OPD of RIMS from February 2019 to June 2019 aged 1 months to 80 years.
Exclusion criteria :
1. Seriously ill patients.
2. Patients requiring surgery.
3. Patients admitted in ENT or other indoor departments.
4. Prescriptions having only investigation(s).

Procedure methodology :
Details of patients such as name, age , sex, diagnosis and other important parameters were observed and entered in a predesigned excel sheet. The following data was collected and assessed :
1. Age and sex distribution of the patients.
2. Total number of drugs prescribed.
3. Average number of drugs prescribed.
4. Anti-microbial prescribing pattern and their route of administration.
5. Anti-histaminic prescribing pattern.
6. Drugs prescribed by their generic/brand name.
7. Adequacy of various prescription parameters.
8. Routes of drug administration.

Statistical analysis : The collected data was analyzed using descriptive analysis. The results were summarized in the form of percentage, tables and pie-charts.

III. Result

A total of 321 prescriptions was collected from the patients attending the ENT OPD from march 2019 to may 2019 and were analyzed. Among 321 patients who attended the OPD 171(53.27%) were males and 150(46.73%) were female (Table 1) .The maximum number of patients were less than 18 years of age (26.17%) and the least number of patients encountered belonged to the age group of more than 60 years (6.54%).

Table 1: Age and sex distribution

Age (years)	Number of patients	Percentage (%)
<18	84	26.17
18-40	138	43
41-60	78	24.30
>60	21	6.54
Total	321	100%
Sex	Number of patients	Percentage(%)
Male	171	53.27
Female	150	46.73
Total	321	100

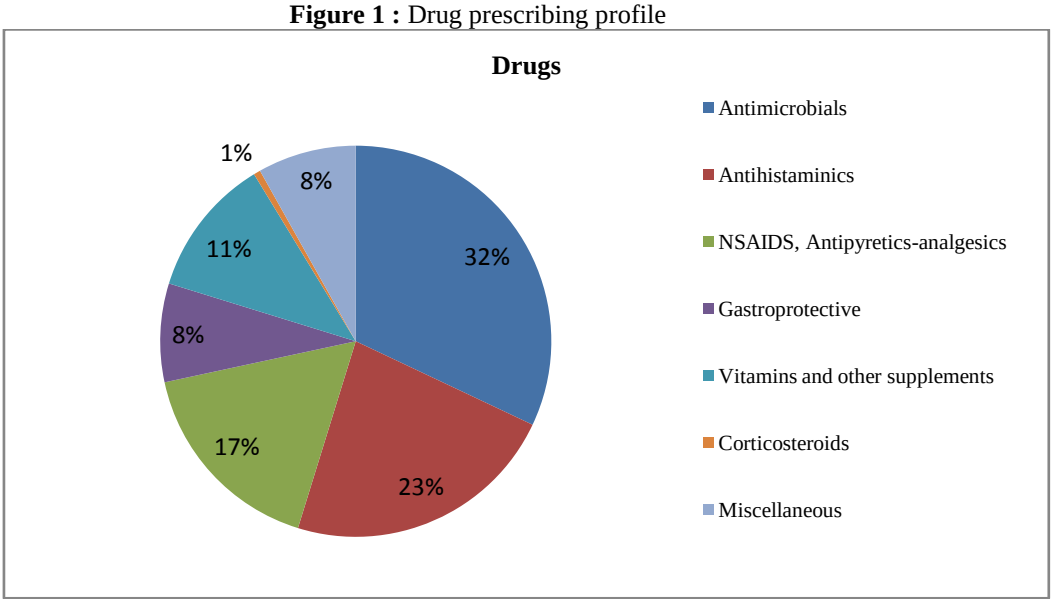
In this study where a total number of 321 prescriptions were analysed, the total number of drugs prescribed was 1068 which infers as the average number of drugs prescribed per prescription to be 3.33 . The maximum number of prescriptions consisted of 4 drugs (27.11%) followed by 3 drugs per prescription (23.36%) respectively (Table 2).

Table 2 : Number of drugs per prescription

Number of drugs per prescription	Number of prescription(s)	Percentage
1	39	12.15
2	60	18.69
3	75	23.36
4	87	27.11
>4	60	18.69
Total	321	100%

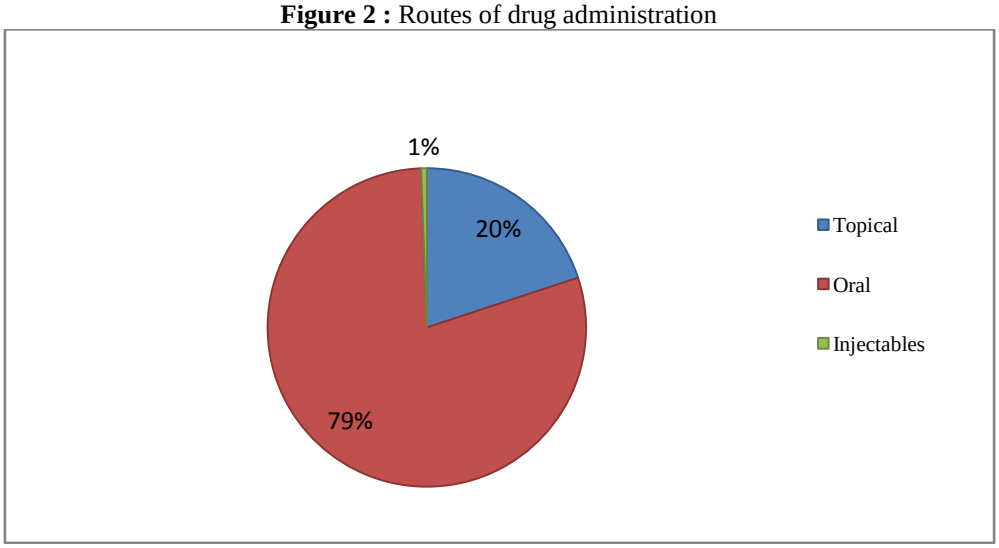
Total number of drugs prescribed was 1068, the most common being the antimicrobials 342 (32%), followed by antihistaminics 243 (22.75%), NSAIDs, antipyretics-analgesics 180 (16.86%), vitamins and mineral supplements 123 (11.52%), gastroprotective drugs 87 (8.15%), miscellaneous drugs 87 (8.15%) (like betadine for gargle, sinarest for inhalation) and the least prescribed drugs were corticosteroids 6 (0.56%) (Figure 1).

Figure 1 : Drug prescribing profile



Considering the routes of administration of the prescribed drugs, the most common route exploited was oral. Number of drugs prescribed by oral route was 849 (79.49%) , those prescribed by topical route was 213 (19.94%) and injectables were 6 (0.56%) respectively (Figure 2).

Figure 2 : Routes of drug administration



Among the prescribed anitmicrobials, the most commonly prescribed drug was combination of cefpodoxime and clavulinic acid (45.61%) which belongs to group beta-lactams , followed by ofloxacin (31.58%) belonging to fluoroquinolone group of antimicrobials and combination of amoxicillin and clavulinic acid (14.04%) belonging to beta-lactam group (Table 3).

Table 3 : Antimicrobials prescribing profile

Antimicrobial group	Drug	Number of antibiotics	Percentage(%)
Beta-lactams	Cefpodoxime+Clavulinic acid	156	45.61
	Amoxicillin+Clavulinic acid	48	14.04
	Cefixime	3	0.88
Macrolide	Clarithromycin	3	0.88
Aminoglycoside	Amikacin	3	0.88
Fluoroquinolones	Ofloxacin	108	31.58

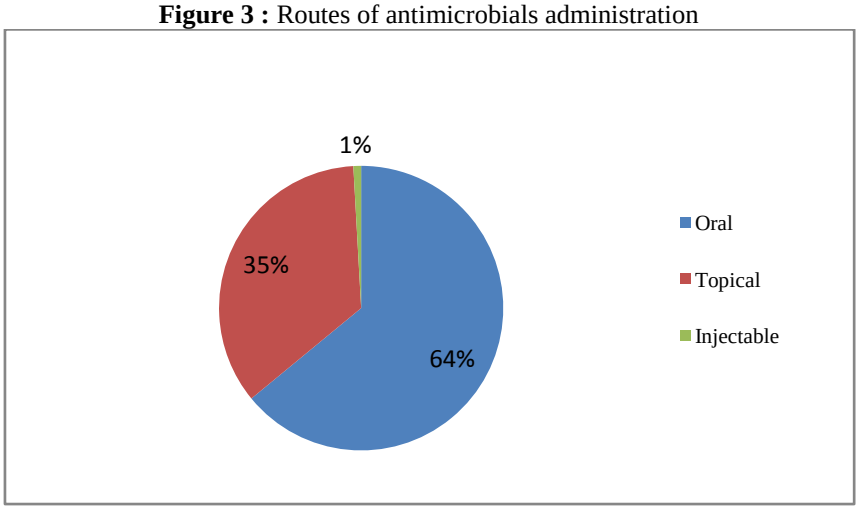
Antifungal	Clotrimazole	9	2.63
Antiprotozoal	Metronidazole	9	2.63
Miscellaneous	Mupirocin	3	0.88
Total		342	100

In this study, antimicrobials were the highest number of prescribed drug. Maximum number of prescriptions contained one antimicrobial prescribed per patient was 129(40.19%), those containing two antimicrobials was 102(31.78%) and 90(28.04%) prescriptions did not had any antimicrobials prescribed (Table 4). The most common route of antimicrobials administration was oral 219(64.03%), followed by topical route 120 (35.09%) whereas that administered by injectable route was 3 (0.88%) (Figure 3).

Table 4 : Antimicrobials prescribed per patient

Number of antimicrobials/patient	Number of prescriptions	Percentage (%)
None	90	28.04
1	129	40.19
2	102	31.78
Total	321	100

Figure 3 : Routes of antimicrobials administration



Antihistaminics were the second most commonly prescribed group of drugs in this study 243 (22.75%). The combination of montelukast and levocetirizine was the most prescribed drug of this group 213 (87.65%), succeeded by fexofenadine 12 (4.94%), promethazine 9 (3.71%), combination of fexofenadine and montelukast 6 (2.47%) (Table 5).

Table 5 : Antihistaminics prescribing profile

Antihistaminics prescribed	Number of antihistaminics	Percentage (%)
Montelukast+Levocetirizine	213	87.65
Fexofenadine	12	4.94
Fexofenadine+Montelukast	6	2.47
Promethazine	9	3.71
Chlorpheniramine+Levodropropizine	3	1.23
Total	243	100

Among the 321 prescriptions encountered in this study, only 21 prescriptions (6.54%) contained drugs prescribed by generic name. The rest prescriptions had drug prescribed by their brand name (93.46%) (Table 6).

Table 6 : Number of drugs prescribed by brand/generic name

Drugs prescribed by	Number of prescriptions	Percentage (%)
(a) Generic name	21	6.54
(b) Brand name	300	93.46
Total	321	100

The overall assessment of the prescription was also done by looking for parameters such as mentioning of chief complaints, drug dosage, drug frequency, duration of treatment etc. These were evaluated on the basis of whether these parameters were mentioned or not while writing the prescription (Table 7).

Table 7 : Parameters of overall prescribing pattern

Prescription parameter	Mentioned (%)	Not mentioned (%)	Total
Presenting complain	207 (64.49)	114 (35.51)	321
Diagnosis/Provisional diagnosis	174 (54.21)	147 (45.79)	321
Duration of treatment	321 (100%)	0 (0%)	321
Dose frequency	321 (100%)	0 (0%)	321
Dosage form	321 (100%)	0 (0%)	321
Signature of physician	312 (97.2%)	9 (2.8%)	321

The maximum number of prescribed drugs in this study were antimicrobials followed by antihistaminics (Figure1). Apart from these other drugs that were prescribed concomitantly were gastroprotective drugs like pantoprazole (alone or in combination with domeperidone), rebamipide and sucralfate, corticosteroids like fluticasone for inhalational purpose, antipyretics like paracetamol , analgesics like diclofenac along with multivitamins.

IV. Discussion

This observational study conducted at out patient department of ENT summarizes the prescribing pattern of drugs in the respective department.

Our study shows that number of male patients were slightly higher than that of female patients. This observation was similar to the study done by Kishore Kumar Y et al.[5]

Total number of drugs prescribed in this study was 1068 in 321 prescriptions, the maximum belonging to group antimicrobials and antihistaminics being second to it. The most common antimicrobial prescribed was combination of cefpodoxime and clavulinic acid (45.61%). Another study conducted by F A Khan et al showed a similar finding where the most common prescribed antimicrobial was of beta-lactam group.[6]

The average number of drugs prescribed was 3.33 owing to total number of 1068 drugs prescribed in 321 prescription. Another study conducted by M.H.Sumana et al observed an average number of drugs prescribed to be 3.04.[7]

In our study, out of 321 prescriptions, only 21 had drugs written by their generic name (6.54%) . A similar study performed by Merin Daniel et al showed that none of the drugs in their study was prescribed by their generic name.[8]

Considering the route of drug administration, the drugs were most commonly prescribed by oral route (76.04%) followed by topical route(35.09%). Such findings of routes of drug administration were also seen in a study conducted by Padwal et al.[9]

Gastroprotective drugs like pantoprazole and sucralfate were also prescribed to prevent gastric reflux and acidity which may happen due to analgesics and antipyretics prescribed concomitantly.

Vitamin and mineral supplements like B-complex and vitamin C were also given to most of the patients to improve general health of the patient , gastric complication caused by antibiotic use and prevention of oral ulcers.

While assessing the prescriptions, one of the drawbacks seen was that 35.51% prescriptions did not have mention of the presenting complain. Secondly, 45.79% of the prescriptions did not have any definite or provisional diagnosis due to which we cannot assess the rational use of drugs dispensed. Although one of the very positive point being about the prescribing pattern is that 100% of the prescriptions contained the dosage form, dose frequency and treatment duration.

This study has its fair share of limitations. The number of prescriptions could have been more but was limited to 321 due to short duration of study. This study did not encompass the adverse effect of the drugs prescribed. Few of the prescriptions did not had any mention of the diagnosis owing to which we cannot comment on the rationality of drug use.

V. Conclusion

Present study shows us that antimicrobials are the most commonly drug prescribed in the outpatient department of ENT at RIMS,Ranchi and that they were mostly prescribed by their brand name. This study highlights some good aspects of prescription writing by the physician like mentioning of the dose and frequency of the drugs prescribed along with the total treatment duartion.

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