

DRUG UTILIZATION OF ANTIMICROBIALS IN ENT PATIENTS

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ABSTRACT

Objective:-The study were highlighted the antimicrobials prescribing pattern of physicians in ear, nose, throat disorders and their relationship in inpatients and outpatients.

Materials and Methods:- The study is a prospective observational, over a period of six months. The patients treated with antimicrobials were used for the study. By using the inclusion and exclusion criteria 591 were selected (558 patients from OPD and 33 patients were from IPD).

Results:- It was found that 58.54% patients were males and majority of the patients (19.29%) were in the age group of 26-35 years. Maximum number of patients were diagnosed with ear infections (38.41%). The most common ear disorders were CSOM (37.88%), nasal disorders were ARS (56.10%) and the throat disorders were Tonsillitis(65.11%). Most commonly prescribed categories of antimicrobials were found to be Fluoroquinolones (61.88%). Abundant of patients (81.89%) received antimicrobial monotherapy;. Most of the antimicrobials were administered through oral route (73.98%). The mean number of antimicrobial agents prescribed per prescription was found to be 1.20. **Conclusions:-**The study highlighted lesser utilization of antimicrobials. The majority of the patients were not treated in accordance with the current guidelines. The number of patients was low and the study was restricted to only one hospital, hence the results cannot be considered representative of the whole country. The mean number of drugs per prescription as low as possible so the study highlighted some rational prescribing practices.

Keywords: Drug interactions, Antidepressants, Drug utilization, Severity, Prescriptions.

INTRODUCTION

Diseases of the ear, nose and throat (ENT) affect the functioning of adults as well as children, often with significant impairment of the daily life of affected patients. It has been envisaged that with increase in global population, infections remain the most important causes of disease, with upper respiratory infections causing hearing loss and learning disability particularly in children. Ear infections such as chronic otitis-media have serious consequences in developing countries, such as retarded language development and progress in school among children. Otitis-media, which is now known to be the most common childhood infection, leads annually to the death of over 50,000 children under 5 years. In other cases nasal conditions may be distressing, as in the case of nasal myiasis/maggots in the nose. Although antibiotics have contributed to the control of ENT infections, their over-use and misuse is now seen to cause an increase in antibiotic resistance.

Some of the chronic sinus ENT diseases resistant to current antibiotics include chronic middle ear infections, chronic sinus diseases, chronic coughs and recurrent pharyngo-tonsillitis. Air pollution has been on the increase and is now known to directly affect the nose and the larynx causing inflammation, irritations and eventually infection. Even the ear is affected when the pollutants enter the mucosa of the tuba, causing impairment of the middle ear. With increasing resistance of microorganisms associated with ENT infections and increasing environmental pollution, alternative sources for new drugs are necessary. These might be obtained from plants used in traditional medicines to control or treat these diseases. Ear, nose, and throat disorders rarely prove fatal (except for those resulting from neoplasms, epiglottitis, and neck trauma), but they may cause serious social, cosmetic, and communication problems. Untreated hearing loss or deafness can drastically impair ability to interact with society. Ear disorders also have the ability to impair equilibrium. Nasal disorders can cause changes in facial features and interfere with breathing and tasting. Diseases arising in the throat may threaten airway patency and interfere with speech. In addition, these disorders can cause considerable discomfort and pain for the patient and require thorough assessment and prompt treatment^{1,2,3,4,5}.

An upper respiratory infection (URI) is a viral or bacterial infection that affects the nose, throat (pharynx), sinuses, and voice box (larynx). These are the most common of all illnesses. The most familiar upper respiratory infections include the common cold (rhinopharyngitis), infection of the throat (pharyngitis), tonsils

(tonsillitis), the maxillary sinuses behind the nose (sinusitis), and the larynx (laryngitis). Ear infections (acute otitis media) are another manifestation of URI^{6,7}.

MATERIALS AND METHODS

The study was a prospective observational study and conducted at T.A.T. ENT HOSPITAL, erode. TAMIL NADU, INDIA. The study were carried over six months. Designing a Performa for data collection. Collecting the case histories of the patient treated with antimicrobials in inpatients and out patients departments. Analyzing the prescriptions and categories it into varieties based on antimicrobials prescribed, type of ENT disorders and other patient's related factors and concluding it.

RESULTS

On the basis of inclusion and exclusion criteria, 591 patients were selected from the ENT OPD and IPD over a period of 6 months for the present study. Among the 591 ENT patients 558 patients were selected from OPD and remaining 33 patients were selected from IPD. Among the 591 ENT patients, 346 were male and 245 were female. The highest number of patients were in the age group 26-35 years and the lowest percentage was geriatric patients, more than 75 years old. During the study, it was observed that 227 patients visited for treating ear infection, 82 for nose infections, 129 for throat infections, 40 for URTIs and 113 for combination of ENT infections (Table1, figure1).

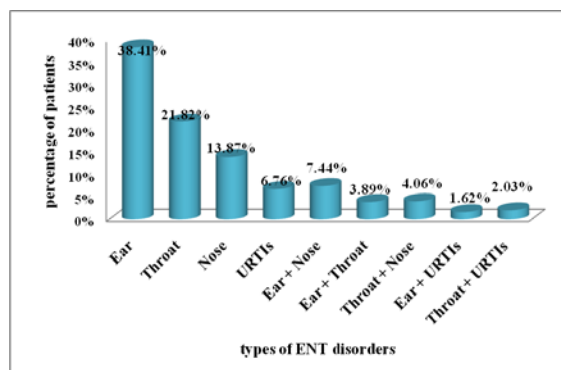


Fig. 1: Types of ENT Disorders

Table 1: Types of ENT Disorders

Effected organs	Ear	Throat	Nose	Urti	Ear+Nose	Ear+Throat	Throat+Nose	Urti	+ear	Urti+ throat
No of patients (n=591)	227	129	82	40	44	23	24	10		12
Percentage (%)	38.41	21.82	13.87	6.76	7.44	3.89	4.06	1.62		2.03

Table 2: Most common ENT Disorders

Types Disorders	Ear disorders				Nose disorders			Throat disorders		
	Csom	Som	Otomycosis	Others	Ars	Sinusitis	Others	Tonsillitis	Pharyngitis	Others
No of patients	86	36	28	77	46	18	18	84	34	11
Percentage (%)	37.88	15.86	12.33	33.93	56.1	21.95	21.95	65.11	26.36	8.53

CSOM=Chronic Suppurative Otitis Media SOM= Secretory Otitis Media ARS = Allergic Rhinosinusitis

Table 3: Class of Antimicrobial Agents Used

Class of antimicrobial	Fluoroquinolones	Blactams	Aminoglycosides
No of antimicrobial agents (N= 711)	440	180	91
Percentage(%)	61.88	25.31	12.80

Table 4: Antimicrobial Agents Used

Antimicrobial agents	Sparfloxacin	Cefdinir	Ofloxacin	Neomycin	Gentamycin	Cephalexin	Others
Total no of antimicrobials (n = 711)	345	165	90	58	33	8	12
Percentage (%)	48.52	23.20	12.66	8.16	4.64	1.12	1.69

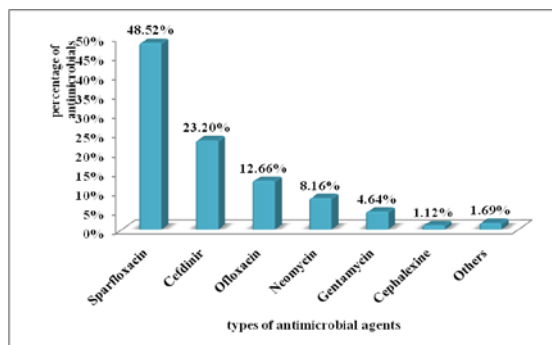


Fig. 2: Antimicrobial Agents Used

Out of 227 ear infected patients 86 patients were diagnosed with CSOM (37.88%), 36 patients were treated for SOM (15.86%) and followed by otomycosis, 28 cases (12.33%). In total 129 throat infections, 84 patients were more effected by Tonsillitis (65.11%) followed by Pharyngitis, 34 cases (26.36%). The most common nose infections were effected in 82 patients. Out of this 82 cases, 46 patients were diagnosed with Allergic Rhino Sinusitis (56.10%) (Table 2). Out of 591 patients 74 patients were reported their comorbid disease conditions. The most frequent comorbid condition of the study population was found to be hypertension, 31 cases (5.24%), 24 patients were associated with diabetes (4.06%) and 12 cases with coronary artery disease (2.03%).

During the study, it was observed that the most commonly prescribed antimicrobials were Fluoroquinolones, 440 cases (61.88%) followed by β -lactams, 180 prescriptions (25.31%), (Table 3)

The most commonly used agent in fluoroquinolones were sparfloxacin (53.23%) and ofloxacin (11.69%), in the class of β -lactams cefdinir (22.46%) were more commonly prescribed (Table 4, figure 2).

The prescription of patients showed that a total of 484 patients received antimicrobials monotherapy, whereas 107 patients were on multiple drug therapy, i.e., 81.89% of the patients received single antimicrobial drug, 15.90% of the patients received double antimicrobial drug.

A total of 711 antimicrobials were prescribed. 526 antimicrobials were administered through oral route remaining 150 antimicrobials were taken as ear drops and remaining 35 were administered through parental route (iv route). All the antimicrobial agents were prescribed by their brand names only. The average number of antimicrobial agents prescribed per patient was found to be 1.20.

DISCUSSION

Demographic characteristics showed that percentage of males suffering from ENT infections was more than females. Further, it was found that a majority of the patients were in the age group of 26-35 years and the lowest percentages were in geriatric group. It indicates that ENT infections are more prevalent in young adults.

Patients suffering from various acute and chronic ENT infections were treated with different antibacterial agents. In this study, the number of patients with CSOM was maximum, however SOM with other ear infections were also observed. The cases of allergic rhinitis, sinusitis and Deviated Nasal septum were predominate in nose-infected patients. However, tonsillitis, acute pharyngitis and laryngitis were the maximum cases of throat-infected patients. It was an interesting observation that a significant number of patients were suffered with URTIs.

Most commonly prescribed categories of antimicrobials were found to be fluoroquinolones, followed by β -lactam and aminoglycosides. Among the individual antimicrobial drugs, maximum patients received sparfloxacin followed by cefdinir. The antimicrobials prescription may vary from one physician to others. The mean number of antimicrobial agents prescribed per prescription was found to be 1.20. Hence, physicians should preferably keep the mean number of drugs per prescription as low as possible as higher figures always lead to increased risk of drug interaction, development of bacterial resistance and increased cost.

In this study, it was found that all the antimicrobial agents were prescribed by their brand names only, which could be due to the influence of medicinal drug promotional activities. Prescribing the brand name may undermine some of the goals of essential drug concept. On the other hand, prescribing by generic names may reduce overall expenditure on drugs, especially on newer antibiotics, etc. A significant number (12.52%) of patients were suffering from concomitant diseases. The most frequent comorbid

condition of the study population was found to be hypertension followed by diabetes mellitus. Cost of antibiotics could be one of the major contributing factors for noncompliance in a developing country like India.

CONCLUSION

The study concluded that most of the patients effected by ENT infections were male than the female, with the age range 25-45 years. The commonest ENT disorders were reported in ear infections. The seasonal variations in disease pattern were observed. The study in this hospital highlighted lesser utilization of antimicrobials in ENT infections, as some of the ENT disorders are not due to microorganisms. It appears that majority of the ENT patients visiting the hospital have infections primarily due to bacteria and most of the patients responded well to the use of antimicrobials. The most commonest antimicrobials used in this hospital for ENT disorders were in the class of fluoroquinolones it means majority of the patients were not used the regimen in accordance with the current guidelines.

Further, the number of patients was low and the study was restricted to only one hospital, hence the results cannot be considered representative of the whole country. However, in spite of all these limitations, the study highlighted some rational prescribing practices. Cost of antibiotics could be one of the major contributing factors for noncompliance in a developing country like India.

Continuing education on rational drug use and development of treatment guidelines for common diseases can suggested.

REFERENCES

1. Witsell DL, Dolor RJ, Bolte JM, Stinnett SS: Exploring healthrelated quality of life in patients with diseases of the ear, nose and throat: A multicenter observation study. *Otolaryngology Head and Neck Surgery*. 2001 Oct;125(4):288-98.
2. Alberti PW: Pediatric ear, nose, and throat services' demands and resources: a global perspective. *Int J Pediatr Otorhinolaryngol*. 1999 Oct 5;49 Suppl 1:S1-9
3. Foir R: Environmental ear, nose and throat problems in children. *Int J Pediatr Otorhinolaryngol*. 1999 Oct 5;49 Suppl 1:S253-5.
4. PatrickJ.Antonelli, MD,Otology/ An overview of chronic ear infections (352) 265-6808 revised 9.6.2004.
5. C A J Prescott Handbook of ENT Diseases and Disorders of the Ear, Nose, and Throat Oxford University Press, Cape Town Southern Africa, 1998.Part II
6. Mossad SB. Upper respiratory tract infections. Cleveland Clinic. Department of Infectious Disease. December 6,2008).
7. Hueston WJ, Mainous AG, Ornstein S, Pan Q, Jenkins R. Antibiotics for upper respiratory tract infections. Follow up utilization and antibiotic use. *Arch Fam Med*. 1999;8(5).