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Evaluation of Drug Utilization Pattern of Antimicrobial Agents in Hyderabad Adult Patients of Otorhinolaryngology (ENT), in a Tertiary Care Teaching Hospital Telangana

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ABSTRACT

The Ear, Nose and Throat (ENT) infections can be caused by a variety of microorganisms such as bacteria, fungi and viruses. Their treatment involves the use of appropriate antimicrobial agents and inappropriate use is closely linked to antibiotic resistance. Hence, present study was planned to evaluate the prescribing pattern of antimicrobials agents in Hyderabad adult patients of Otorhinolaryngology (ENT), in a tertiary care teaching hospital Telangana. A cross-sectional prospective observational study carried out over a period of six month from Jan 2018 to June 2018. Total 250 patients were selected during our study and were analyzed on the basis of inclusion and exclusion criteria. All the patients with antibiotics in their prescriptions, between 18-65 years of age were included in the study. Data were collected in Case Record Form (CRF). In this study, total 250 Hyderabad adult patients' prescriptions were analyzed. Among them 148 (59.20%) were male and 102 (40.80%) were female. The maximum number of patients were found to be 18-30 years of age group. Among all ENT infections, Most common infection was Chronic Suppurative Otitis Media (CSOM). The most commonly prescribed antimicrobial agents were Ceftriaxone (n=152, 60.80%); followed by Amikacin (n=96 38.40%); Metronidazole (n=65 26%) and Ciproflocxacin (n=35, 14%). Our study concluded that Beta lactams, Amikacin, Metronidazole were most commonly prescribed antibiotics and also included in essential drug list. The use of the generic names was found to be satisfactory, but the average number of drug per prescription was high.

KEYWORDS: *Prescribing Pattern, ENT Infection, Antimicrobial agents*

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INTRODUCTION

The daily life of adults are affected by diseases of Ear, Nose and Throat (ENT) and also cause significant morbidity. Among all the infections of ENT, upper respiratory tract infections (URTIs) are very common. The respiratory tract infections including nasopharyngitis, pharyngitis, tonsillitis and otitis media were found the fourth major cause of mortality according to World Health Report of 2004 estimated by the World Health Organization (WHO).[1]

The Ear, Nose and Throat (ENT) infections can be caused by a variety of microorganisms like bacteria, fungi and viruses. It affects all age groups, from children to adults. ENT infections often have serious consequences such as hearing impairment and emotional strain which however, seems to lower the patient's quality of life.[2]

Acute respiratory infections accounts for 20–40% of outpatient and 12–35% of inpatient attendance in a general hospital. URTIs including nasopharyngitis, pharyngitis, tonsillitis and otitis media constitute 87.5% of the total episodes of respiratory infections

and are a major source of morbidity and absenteeism at work. [3]

Majority of acute Upper Respiratory Tract Infections (URTIs) caused by viruses. They are found to be most common cause for URTIs, with rhinovirus, parainfluenza virus, coronavirus, adenovirus, respiratory syncytial virus, Coxsackie virus, human metapneumovirus, and influenza virus accounting for most of the cases. Though, viral aetiology is a most common for respiratory infections and antimicrobials are used rampantly in its management Thus, the irrational use of antimicrobials in Ear, Nose, Throat (ENT) and respiratory infections is prevalent.[4]

Antibiotics have played major role in treating ENT infections over the years. However, their inappropriate use is closely linked to antibiotic resistance. Antimicrobial prescription patterns differ from country to country or even from region to region, which is attributable to various factors such as the infecting organisms and antimicrobial susceptibility, physician preference and costs. Hence, the present study was aimed to evaluate the prescribing pattern of antimicrobials in ENT infections.[5]

The inappropriate and irrational use of antimicrobial agents in hospitals contributes to the emergence and spread of drug-resistant microorganisms and increased treatment expenditures. The overuse and/or misuse of antibiotics can lead to significant consequences like increased costs, prolonged hospitalization. Bacterial resistance, therapeutic failures, drug toxicities and drug interactions this is leading to increased morbidity, mortality, length of hospital stay, and excessive financial burden on patients and institutions.[6]

Therefore, monitoring and evaluation of prescribing patterns of AMAs are one of the recommended strategies to contain and control resistance also to improve the prescribing practices. The rational use of antibiotics would help to limit as much as possible the appearance and spread of resistant strains. Antibiotic restriction policies are must for hospital setups. Antimicrobial prescription studies may help in devising strategies for antibiotic policy.[7]

Hence, the present prospective study was aimed to evaluate drug utilization pattern of antimicrobial agents used in ENT infections in Hyderabad adult patients.

MATERIALS AND METHODS:

The present study was conducted in the department of Pharmacology, Dr. S.N. Medical College, Jodhpur in association with ENT department, Mathura Das Mathur (MDM) Hospital Jodhpur, (Telangana). It was a cross sectional prospective study carried out over a period of six month from Jan 2018 to June 2018. Before starting the study, ethical approval was obtained from the Institutional Ethics Committee.

Total 250 patients were selected during our study and were analyzed on the basis of inclusion and exclusion criteria. All the patients with antibiotics in their prescriptions, between 18-65 years of age were included in the study over 6 months. Inpatients (inpatients are defined as who stayed for more than 24 hrs, (both male and female) who will be prescribed or treated with antimicrobial medication will be included in this study. Patients who visited the emergency department and those patients admitted in the ward will be included in the study. Any patient died post-operatively before being discharged was excluded from the study, absconded/discharged against medical advice, OPD patients, excluded from our study.

All the information was recorded in case record form (CRF) which was designed according to WHO criteria. It includes age, gender, other details of patient, investigations, information related with prescription drug information from the prescriber like the indication, dose, frequency of drug administration, routes of administration, duration of therapy.

RESULTS:

In this study, total 250 Hyderabad adult patients' prescriptions were analyzed on the basis inclusion and exclusion criteria. Among them 148 (59.20%) were male and 102 (40.80%) were female. The maximum number of patients were found to be 18-30 years of age group; followed by 47 patients in 31-40 years age group and minimum patients were in 61-70 years age group. The mean age of the total study patients 34.67±14.05. (Figure 1)

Most common infection was Chronic Suppurative Otitis Media (CSOM) (n=82, 32.8%); followed by Nasal Polyp (n=37, 14.8%); Tonsillitis (n=34, 13.6%) and Sinusitis (n=25, 10%). Combined type of ENT infections were tonsilo-pharyngitis and rhino tonsillitis. CSOM predominant in male patients compared to females. (Figure 2) During the study it was observed that total number of antimicrobial agents prescribed was 483. Each patient, on an average was prescribed antibiotics 1.93 per prescription. The most commonly prescribed antimicrobial agents were Ceftriaxone (n=152, 60.80%); followed by Amikacin (n=96 38.40%); Metronidazole (n=65 26%) and Ciproflocxacin (n=35, 14%). Most commonly prescribed fixed dose combination Piperacillin plus tazobactam (n=108, 43.20%). (Figure 3)

In current study, single drug therapy was prescribed in 116 patients. As a form of poly drug therapy, two antibiotics were prescribed in 56 patients. Prescription with three drugs were prescribed in 60 patients and prescription with four and more than four antibiotic seen with 18 patients, respectively. (Figure 4)

Figure 1: Age wise distribution of patients:

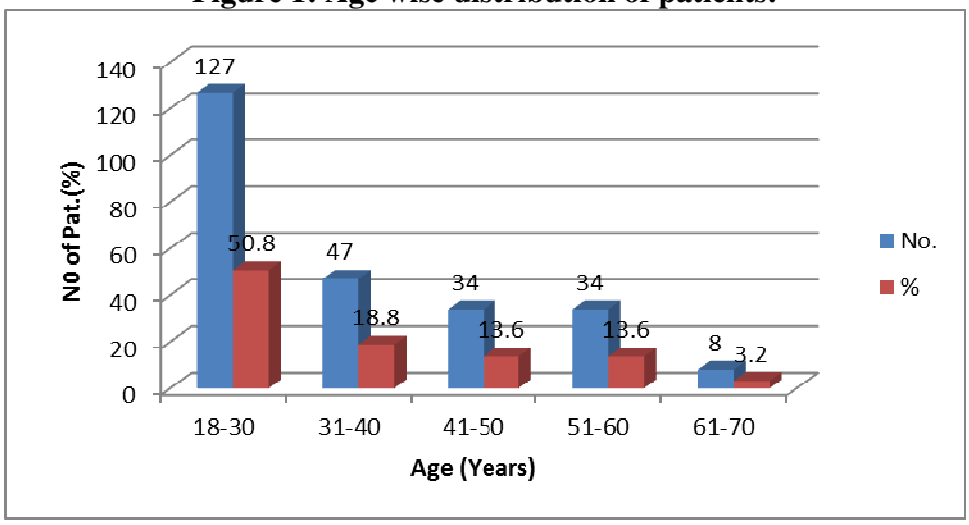


Figure 2: Common ENT infection:

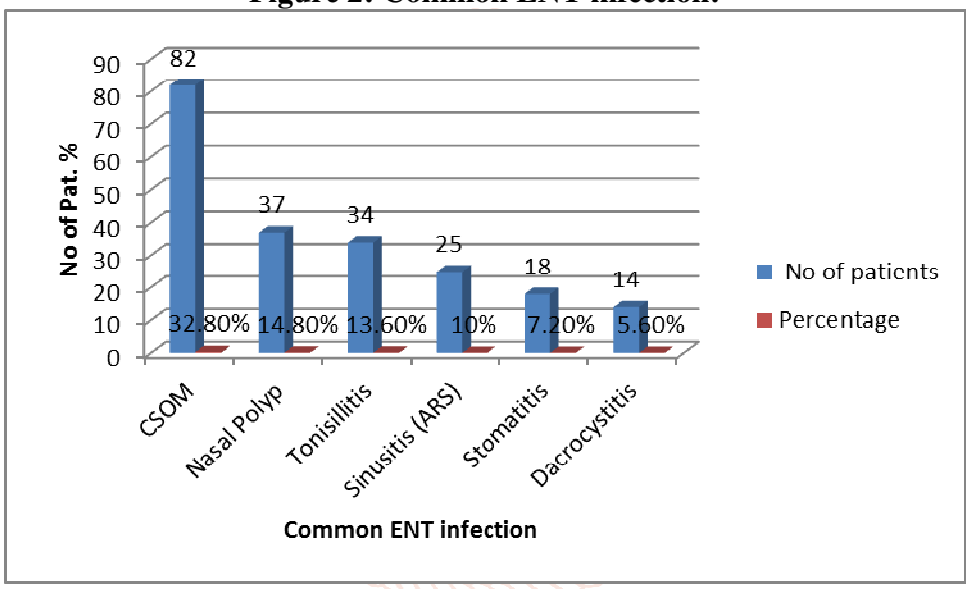


Figure 3: Prescribing frequency of antibiotics:

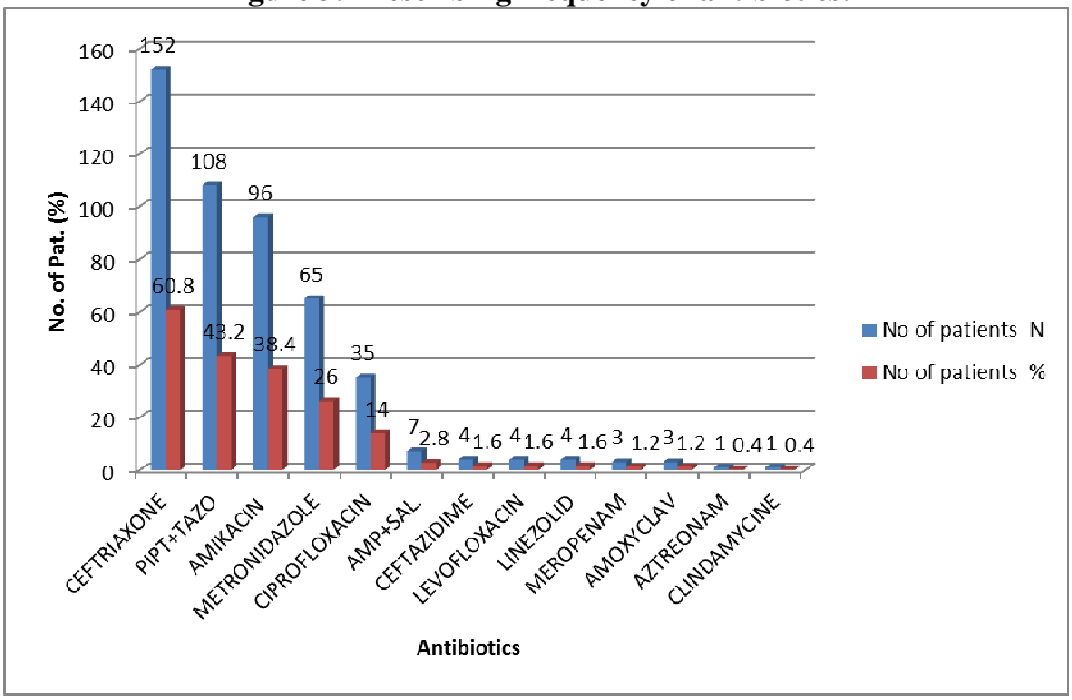
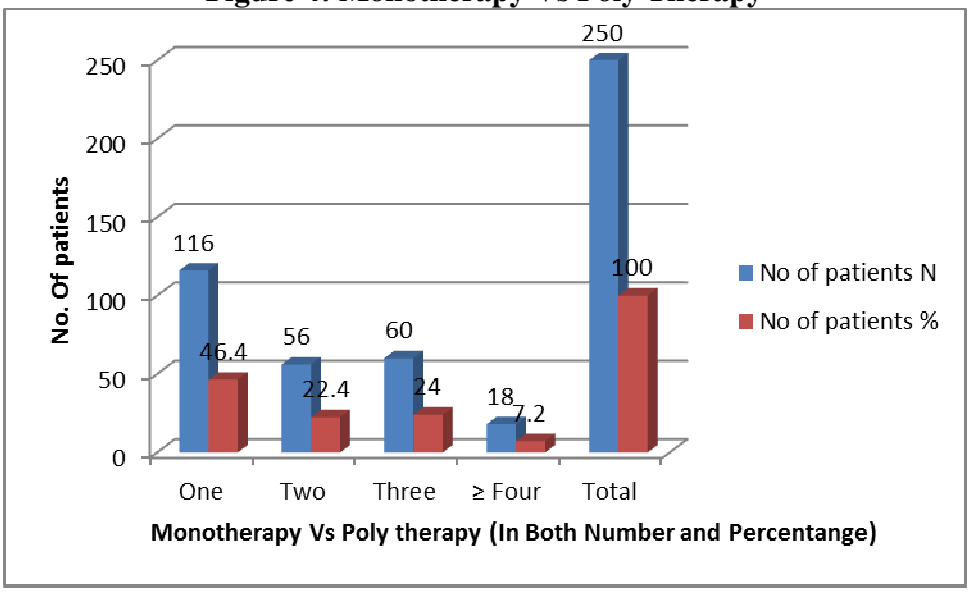


Figure 4: Monotherapy Vs Poly Therapy



DISCUSSION:

Prescription by the doctors shows attitude of the doctors towards the patients and diseases. There is much variation in prescription of antimicrobials. Irrational and indiscriminate use of the antimicrobials for the treatment of infections may increase the bacterial resistance. In general practice, the therapeutic approach for ENT infections is nearly empirical and the main aim of physicians is to treat as specifically as possible, while covering the most likely pathogens. The present study indicates general prescribing trends of antimicrobial agents in Hyderabad adult patient of ENT department.

A total of 250 Hyderabad prescriptions were analyzed and the demographic data showed that the number of male patients suffering from ENT infection was more than the number of female patients. Similar findings were observed in studies done by Patel et al., (2018) and Khan *et al*., (2011).[8,9] In contrast, other study showed that females are more sensitive to ENT infections than males; the reason might be their exposure to kitchen smoke.[10]

Majority of the patients were in the age group of 18-30 years and the lowest percentage was in the geriatric population. It indicates that ENT infections are more prevalent in young adults. Similar findings were reported in other studies done by Pallavi *et al*., (2016) and Patel et al., (2018).[11,8]

In our study, the most common ear infection was CSOM (32.8 %) which is in accordance with other study conducted by Patel et al., (17.19%) and Yadav *et al*., (50.8%).[12,8] Tonsillitis (13.6%) followed by Pharyngitis (5.6%) were the throat infections observed. Similar findings were reported by Patel et al.[8] Nasal Polyp and sinusitis most common nasal infection in our study.

The most commonly prescribed antimicrobial agents were Ceftriaxone (n=152, 60.80%); followed by Amikacin (n=96 38.40%); Metronidazole (n=65 26%) and Ciproflocxacin (n=35, 14%). Most commonly prescribed fixed dose combination Piperacillin plus tazobactam (n=108, 43.20%). Similar findings were reported in M. R. Ain et al.[13]

In contradicted to our study, studies done by A. Anandhasayanam (2016) in Tamilnadu, Yadav P. (2010) in Maharashtra revealed Ciprofloxacin was most commonly prescribed antibiotic.[14,12]

The mean number of antimicrobial agents prescribed per patient per course was found to be 1.93 in our study. Similar finding were reported by Das et al. revealed 1.4 antimicrobial agents per patient.[15]

Further, 46.40% patients received antibacterial monotherapy; and 22.40% prescriptions had two antimicrobial agents; 24% prescription had three antibiotic and 7.20% prescription four antibiotic. Similar findings were reported by Das et al. have reported that single drugs were prescribed the maximum (89.52%), followed by two drugs (9.94%) and three drugs (0.52%) in ENT patients'.[15]

In this study, we found that 100% antimicrobial agents were prescribed by their generic names. Prescribing by generic names may reduce overall expenditure on drugs, especially on newer antibiotics and avoiding medication error.

CONCLUSION:

Our study concluded that Beta lactams, Amikacin, Metronidazole were most commonly prescribed antibiotics and also included in essential drug list. The use of the generic names was found to be satisfactory, but the average number of drug per prescription was high. The present study shows some rational practice like less use of antimicrobials in

ENT infections and was according to the standard treatment guideline. Prescriptions by brand names, prescription of broad spectrum antimicrobial without culture and sensitivity reports are some irrational practices. The results of this study will be useful in future for making and improving standard treatment guidelines. It also promotes the rational prescription and rational use of medicines.

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