



RESEARCH ARTICLE

DRUGS UTILIZATION TRENDS IN ENT PRACTICE –A REVIEW OF LITERATURES

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ABSTRACT

Objective: This review was designed to scrutinize the recent changes in the pattern of drug prescription in Ear, Nose and Throat, so that appropriate adjustment can be made for the benefit of patients. **Data sources:** A systematic electronic literature search of Medline/PubMed, CINAHL, Cochrane reviews and Web of Science was conducted for articles describing Pattern of Drug Prescription in ear, nose, and throat (ENT) Medical Practice. English-language articles and articles with an English abstract that focused on Pattern of Drug Prescription were considered for review. **Review Methods:** Each included article was reviewed by the author for study design, intervention, and outcome. **Results:** A total of 7 articles were identified for this literature review, and other 20 articles were taken into consideration for the review. Most of the studies revealed prescribing more than one medication. Most commonly used antibiotic in most of the studies was Amoxicillin – Clavulanate followed by Fluoroquinolones. Also along with the Antibiotics, one gastro protective, analgesic and anti-histaminic were commonly prescribed. Most of the times, Antibiotics were prescribed without culture and sensitivity reports. **Conclusion:** Review of all the studies showed that more than one drug was prescribed, most of which were FDCs or by Brand name. Also, most of the times Antibiotics were prescribed before Culture and Sensitivity tests, which may be the core factor of growing antibiotic resistance. Creating awareness amongst physicians via Continuous Medical Educations (CME) may overcome this issue.

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INTRODUCTION

Diseases of the ear, nose, and throat (ENT) constitute among the most common causes of hospital visits worldwide and are responsible for the significant amount of morbidity and rarely mortality (Bhat et al., 2015). These are responsible for significant school and work absenteeism and have generated 94.6 Disability-adjusted life years lost worldwide and were the fourth major cause of mortality, responsible for 4 million deaths or 6.9% of global number of deaths in 2002 (Bhat, 2013; WHO, 2014). Acute respiratory infections account for 20–40% of outpatient and 12–35% of inpatient attendance in a general hospital. URTIs including nasopharyngitis, pharyngitis, tonsillitis and otitis media (OM) constitute 87.5% of the total episodes of respiratory infections (Jain, 2001). The vast majority of acute URTIs are caused by viruses. For instance, the common cold is caused by viruses in most circumstances and does not require antimicrobial agent unless

it is complicated by acute OM (AOM) with effusion, tonsillitis, sinusitis and lower respiratory tract infection. Most cases of rhino sinusitis are viral and, therefore, resolve spontaneously without antimicrobial therapy (Jain, 2001). Therefore, inappropriate antibiotic use exposes patients unnecessarily to potential adverse events and increases the prevalence of antibiotic-resistant bacteria (Austin et al., 1999). One of the reasons physicians may prescribe an antibiotic inappropriately is to save time (Linder, 2003). Rational use of drugs will ensure that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, at the lowest cost to them and their community (Khan 2011). WHO defines the rational use of medicines as "patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time and at the lowest cost to them and their community (WHO, 1985). Hence, this literature review was undertaken to scrutinize the prescription pattern in the treatment of ENT infections.

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RESULTS

Comparing 7 articles it was evident that majority of the population visiting ENT department was male (Table - 1). Similar Sex distribution was also found in *Shankar et al* and *Pradhan et al.* (2007). Also, the highest number of patients was in the age group of 16-25 years. It indicates that ENT infections are more prevalent in young adults. It was noted that, comparing most of the studies including *Bhat et al.* (2006) and *Ain et al.* (2010), revealed that CSOM was most common ear Infection.

Table 1. Sex Distribution amongst various studies (%)

| Study | Male | Female |
|------------------------------------|--------|--------|
| Bhat et al. (2015) n=608 | 50.8% | 49.2% |
| Begum et al. (2017) n=300 | 73.33% | 26.67% |
| Ain et al. (2010) n=276 | 62.68% | 37.32% |
| Joshi et al. (2018) n=313 | 59.1% | 40.90% |
| Padwal et al. (2015) n=855 | 59.64% | 40.36% |
| Anandhasayanam et al. (2016) n=568 | 65.6% | 34.4% |
| Hanumantha et al. (2011) n=14,004 | 48.6% | 51.4% |

Table 2. Prescribing Parameters – Average number of drugs per prescription

| | |
|------------------------------|------|
| Bhat et al. (2015) | 3 |
| Ain et al. (2010) | 1.58 |
| Anandhasayanam et al. (2016) | 1.9 |
| Padwal et al. (2015) | 0.98 |
| Das et al. (2015) | 1.4 |
| Hanumantha et al. (2011) | 2.85 |
| Joshi et al. (2018) | 3.2 |

Table 3. Most Common Prescribed Antibiotics according to studies

| | |
|----------------------|--|
| Bhat et al. (2015) | Amoxicillin-clavulanate (53%), Levofloxacin (17%), Cefixime (14%). |
| Ain et al. (2010) | Amoxicillin - clavulanate (21.74%), Gemifloxacin (14.41%), Chloramphenicol (9.84%), Ciprofloxacin (23.85%), Amoxicillin (20.06%), Ampicillin + Cloxacillin (9.17%), |
| Padwal et al. (2015) | Amoxicillin (56%) Ciprofloxacin (24%) Co-trimoxazole (12%) |
| Joshi et al. (2018) | Amoxicillin – Clavulanate (62%) Ofloxacin (13%) Chloramphenicol (3%) |

Otitis Externa, Furunculosis, Acute Otitis media (AOM) and URTI were also other commonly encountered diseases. Other diseases reported include sinusitis, pharyngitis, tonsillitis, otomycosis, vestibulitis, and candidiasis of the oropharyngeal region. On the basis of the results of prescription analysis about most of the prescription contained more than one Antimicrobial Drug (Table – 2). This result indicated polypharmacy. Polypharmacy is known to cause unnecessary adverse reactions, drug interactions, and complications (Charatan., 1999). Hence, physicians should prescribe minimal possible drugs as higher figures always lead to increased risk of drug interaction, development of bacterial resistance and increased cost (Atanasova, 1995; Till et al., 1991). Review of most research publications revealed that the most common antimicrobial agent class used was beta-lactams, including penicillins and cephalosporins, form the most common group or oral AMAs prescribed to the patients. Amoxicillin-clavulanate was the most common AMA prescribed, followed by fluoroquinolones (Levofloxacin, Gemifloxacin, Ciprofloxacin and Ofloxacin). Amoxicillin – Clavulanate was also most commonly prescribed agent for AOM according to study *Uijen et al.* (2002), *Quach et al.* (2004), *Akkerman et al.*

(2005), *Berman et al.* (1997). Least commonly used drugs include macrolides, antifungals, and lincosamides. It is well known that indiscriminate use of broad-spectrum antibiotics increases bacterial resistance (Stille et al., 2004). So, the use of azithromycin and clarithromycin should be indicated only when their broad coverage is required or when another antibiotic use is prohibited due to allergy, etc. However, a change in the prescribing patterns from a small spectrum to penicillin to amoxicillin - clavulanate, as indicated in Table 3, could be due to an increase in antibiotic resistance which encourages physicians to choose a broader and safer option. Also, by reviewing most of the literature it was found that all the antibacterial 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 the essential drug concept. On the other hand, prescribing by generic names may reduce overall expenditure on drugs, especially on newer antibiotics, etc. The trend of prescribing drugs under the generic name is declining (Ryan, 2003). Also, most of the studies stated that around 45 - 50% of the prescription of contained Analgesics. Mostly NSAIDs were used in FDC, Diclofenac + Paracetamol being common. Diclofenac + serratiopeptidase or Diclofenac alone were also commonly prescribed. It was observed that almost every patient received one antibiotic, one NSAID, one gastro protective, and one antihistaminic drug. This pattern indicates “symptomatic” rather than “definitive” approach toward patient management. Over prescription of gastro protective agents without valid need or history of acid-peptic disease unnecessarily increases the cost of treatment (Padwal et al., 2015). Most of the health-care system used the brand name to prescribe the drugs.

Conclusion

Review of all the studies showed that more than one drug was prescribed, most of which were FDCs or by Brand name. Also, most of the times Antibiotics were prescribed before Culture and Sensitivity tests, which may be the core factor of growing antibiotic resistance. Creating awareness amongst physicians via Continuous Medical Educations (CME) may overcome this issue.

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