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PRESCRIBING PATTERN AND MEDICATION ADHERENCE IN TONSILLITIS

Introduction

The major cause of acute tonsillitis is a virus^[1]. The viral Tonsillitis is usually caused by the rhinovirus, followed by the coronavirus, and the adenovirus. It is less commonly caused by the influenza virus, parainfluenza virus, enteroviruses, or herpes virus^[2]. When the tonsillitis is associated with infectious mononucleosis, the most common infective agent is Epstein-Barr virus^[3,4,5].

The beta- hemolytic bacterium is the most common causative agent of bacterial tonsillitis. The first line therapy for tonsillitis is antimicrobial, and it is the most prescribed drug in medical centers^[2]. The other bacterial infections which leads to tonsillitis are mycoplasma pneumonia and Neisseria gonorrhoea. It is particularly seen in those engaging in oral genital sex. Antipyretics,

analgesics, and the cough suppressants also reduce the symptoms of tonsillitis infection^[3].

The majority of the antibiotics prescribed in ENT infections with a presumed viral etiology for symptomatic relief. Acute tonsillitis, where viruses like adenovirus, Epstein-Barr virus or influenza viruses are implicated, is treated symptomatically with antipyretics, anti-inflammatory drugs and mouth gargles, and reassurance to the patients. Several studies have reported that antimicrobials are prescribed in the management of Upper Respiratory Tract Infection due to the drug related problems associated with inappropriate use^[4,5]. The limited role of antimicrobials in acute tonsillitis of viral etiology has been published in an overview of Cochrane reviews. In a study published from the Middle East, antimicrobials were rated as the fourth most frequently prescribed drugs in primary health-care facilities^[4].

Antibiotic prescription pattern differs 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. Therefore, it is imperative to evaluate and monitor the drug utilization patterns periodically, to enable suitable modifications to be made in prescribing patterns, in order to increase the therapeutic benefit and decrease the adverse effects, and thus optimize the treatment. Drug utilization studies are designed to systematically review the drugs prescribed to the patients. These help provide feedback to the clinicians, develop protocols that describe optimal drug use, and promote appropriate drug use through educating the patients^[2,5].

Methods

A prospective observational study was carried out in the ENT department in a 500 bedded tertiary care hospital. The subjects presented to



the Out Patient department and who met the inclusion and exclusion criteria were enrolled in the study. 70 patients enrolled in the study with the diagnosis of Tonsillitis. The relevant data on clinical symptomatology, investigations, diagnosis and treatment were recorded on a customized data collection sheet and were analyzed. Morisky green Levine questionnaire was used to find out the medication adherence behavior of patients towards to the treatment. Data collected were analyzed using Statistical Package for Social Science version 20 (SPSS 20).

Results

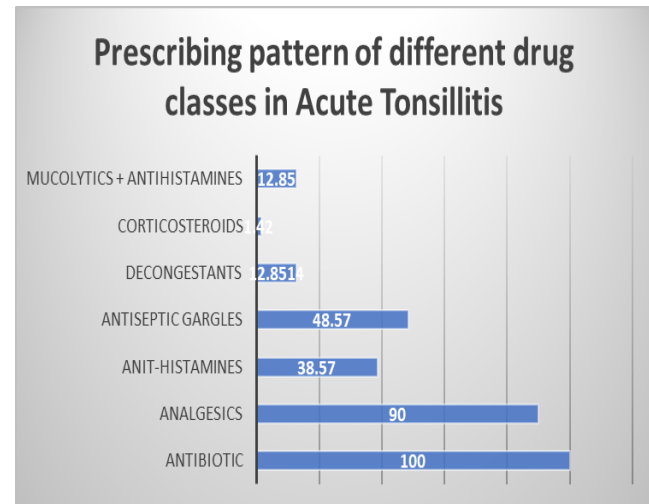
The study enrolled 70 subjects which included 26 males and 44 females. The study indicates general trends of prescribing pattern in the out patients' department of ENT and reflects the medication adherence behavior in tonsillitis patients in the study population. The age pattern of the patients ranged from 5-60 years with a median age of years.

Table1: Age wise categorization of Tonsillitis diagnosed

Age category	Acute tonsillitis	Adeno tonsillitis	Pharyngo tonsillitis
5-15	32	5	0
16-25	31.42	0	0
26-35	10	0	1.42
36-45	0	0	1.42
45-60	2.857	0	0

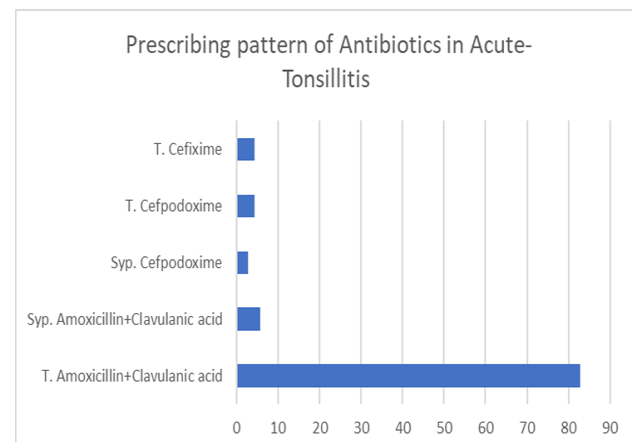
The highest prevalence of Acute tonsillitis (42%) was observed between the age group of 5-15 and with a slight variation for the age groups 16-25 years. Adeno tonsillitis was only observed in the age group of 5-15 years

Figure 1: Prescribing Pattern of different drug classes prescribed in acute tonsillitis



Antibiotics were given to the whole study population and the least used drugs were the combination of mucolytics and anti-histamines.

Figure 2: Pattern of use of antibiotics in tonsillitis



Among the study population, the most prescribed drug for tonsillitis was the combination of Tab. Amoxicillin and Clavulanic acid which was given to about 58 subjects, followed by the combination syrup formulation of Amoxicillin + Clavulanic acid to about 4 subjects. The reason for prescribing



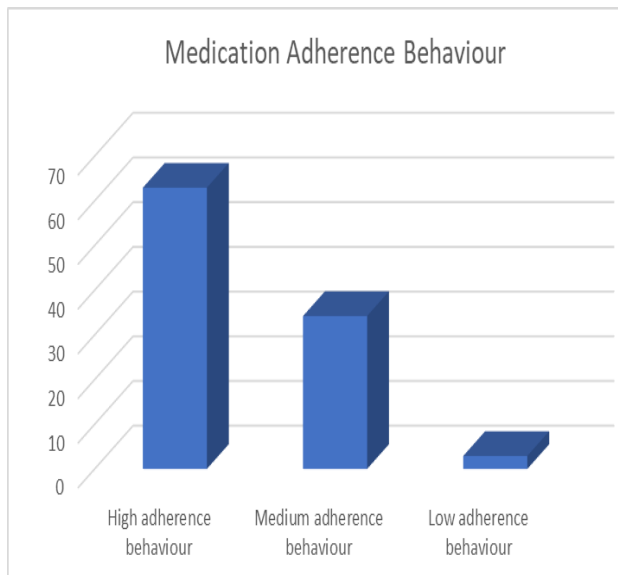
amoxicillin / clavulanate and third generation cephalosporins could be due to the preponderant mixed group of infections and increase in antibiotic resistance, which encourages physicians to choose broader spectrum antibiotic

Table 2: Age Wise Categorization Of Pattern Of Antibiotics Prescribed

Age	Tab amoxicillin + clavulanic acid	Syp. Amoxicillin+ clavulanic acid	Syp cefpodoxime	Tab cefpodoxime	Tab cefixime
5-15	27	4	2	1	3
16-25	21	0	0	1	0
26-35	8	0	0	0	1
36-45	1	0	0	0	0
46-60	1	0	0	0	0
Total	58	4	2	3	3

Tab amoxicillin with clavulanic acid is the most prescribed antibiotics in acute tonsillitis when compared with other antibiotics and that too within an age group of 5-15 years.

Figure 5: Medication Adherence Behavior



Among the study population, patients showed high adherence to therapy.

Antibiotic resistance and sensitivity pattern

Antibiotics resistance, sensitivity is not found in throat swab culture in this present study. The reason for that, higher prescription range of

antibiotics was amoxicillin+ clavulanic acid. (82.85714%) The clavulanic acid is β lactam drug, that inhibits the β -lactamase enzyme, it is not effective as an antibiotic, so it combined with penicillin-group antibiotics. This can overcome antibiotic resistance in bacteria that secrete β -lactamase, which otherwise inactivates most penicillin.

Discussion

Prescription by a doctor which may be taken as a reflection of physician's attitude to the disease and role of the drug in treatment. However, many physicians prescribe antibiotics in the hope that they will prevent secondary bacterial infections¹. The most commonly prescribed categories of anti-bacterials were found to be from beta-lactam antimicrobials (Penicillin and Cephalosporins). This findings were similar in several other studies conducted by Ain et al. (2010), Khan et al. (2011), Senok et al. (2009), Higashi (2009). In this study the pattern of commonly prescribed groups of drugs for the treatment of acute tonsilitis are included (Figure 1) which is



similar to that reported from Nepal 1997¹. In the present study, antibiotics are prescribed to the whole subjects (70) enrolled in the study. Several factors have been contributed for the prescription of antibiotics which include geographic region, variations in prescribing behavior between different geographic regions and medical certification levels². The other possible factors contributing to the prescription of antibiotics are physician characteristics, diagnostic uncertainty, physician time-constraints, and physician-patient interaction.

The most commonly used antimicrobial drug in the performed study is Amoxicillin/Clavulanic acid (82.2%). In a study from Nepal 95.9% of the prescriptions contained antimicrobials in the treatment of acute tonsillitis (Rehan 2003). In a publication from Thailand (Issarachaikul and Suankratay 2013), more than 80% of the prescriptions for upper respiratory tract infections contained antimicrobials.

Making an informed decision to prescribe antibiotics is always challenging for physicians, because it is difficult to distinguish between bacterial and viral ARTIs based on clinical signs and symptoms, many of which overlap. It also provides an insight into the nature of health care delivery system². In order to limit the irrational use of antimicrobials, the most common conditions for which they are prescribed should be identified and their prescription should be limited to clinical situations in which their efficacy has been proven to curb the increasing incidence of bacterial resistance, and to prevent the adverse effects³. The present descriptive study indicated general trends of prescribing in the out-patient Department of ENT. The results of the present study showed that there is considerable scope for improving the prescribing pattern in the management of acute tonsillitis and minimizing the use of antibacterial agents. Hospital authorities should develop therapeutic guidelines for

common diseases like acute respiratory infections and diarrhea. Only a combination of regulatory, informative, and educational interventions can bring in general improvement in quality of prescribing behavior⁴. In our future endeavors, we plan to study the effect of regulatory and educational interventions on drug use pattern in the management of acute tonsillitis.

The study subjects had a high medication adherence behavior of 62.9% which was assessed, using the Morisky Green Levine test. The high medication adherence behavior of the subjects helped in resolving the symptoms of the disease.

Conclusion

The study performed to assess the prescribing pattern and medication adherence in tonsillitis patients. The study confirms that Amoxicillin + Clavulanic acid is the most commonly prescribed antibiotic for the treatment of patients with tonsillitis infection in Out Patient's department. The other prescribed drugs with antibiotics are analgesics, antihistamines, corticosteroids, antiseptic gargle, nasal decongestants, antihistamines + decongestants, mucolytics + antihistamines. These drugs could improve the symptoms, significantly. The high medication adherence also reflects the patient's attitudes towards the therapy.

The reason for prescribing amoxicillin/clavulanate could be due to the preponderant mixed group of infections and increase in antibiotic resistance, which encourages physicians to choose a broader spectrum antibiotic. Strict strategies should be laid down for the use of antibiotics as they have little or no benefits towards tonsillitis or any other respiratory infections, cold etc.



Acknowledgement

The authors thank the almighty and the Department of ENT, KMCT Medical College Hospital, for their valuable support throughout the study.

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