

Prescription Pattern in patients with Acute Tonsillitis, attending Outpatient Department

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ABSTRACT

Background: Acute tonsillitis is a major health problem among children and adults which is badly effects the quality of life.

Aim: To determine the antimicrobial prescription pattern in patients with acute tonsillitis, attending ENT OPD of Kulsumbai Valika, Social Security, Post Graduate Teaching Hospital Karachi..

Methodology: This cross-sectional study was conducted among the patients attending the outpatient of ENT, with acute tonsillitis. Study was conducted in Outpatient of ENT department of Kulsumbai Valika Social Security S.I.T.E. Hospital, Karachi. from 1st January 2023 to 31st December 2023. Data collection was done from the prescription of each patient. Statistical analysis was carried out using SPSS version 23.

Results: A total of 210 acute tonsillitis patients, with 116(55.23%) were male. Mean number of the drugs in prescription 4±1.4. All the prescriptions included antimicrobials, 185(88%), and NSAIDs. Amoxicillin / Clavulanic acid (24.8%) and Ceftriaxone (12.2%) were the most commonly prescribed antimicrobials. Parenteral route was preferred in 113(53.8%). None of the patients was offered culture or sensitivity test of the microorganisms.

Practical implication: Acute tonsillitis patients admitted and started parenteral antibiotic along with anti-inflammatory drugs.

Conclusion: Antimicrobials those were prescribed in almost all cases of acute tonsillitis, and most frequently prescribed were Amoxicillin / Clavulanic acid and Cefixime. Injectable antibiotics were also prescribed very frequently. Most of the patients were given just one antibiotic. This study findings highlighted the gaps the rational practices in drug prescribing for acute tonsillitis.

Keywords: Acute tonsillitis, Amoxicillin, antimicrobials, Clavulanic acid, Cefixime, prescription.

INTRODUCTION

Acute tonsillitis affects both adults and children, which significantly affects the health and quality of life. Prescription pattern of antibiotic for acute tonsillitis is differ among different countries and depends on micro-organism, susceptibility of antibiotic, cost and choices of physician.¹ A major proportion of all the respiratory infections includes Upper Respiratory Tract Infections (URTIs), which also includes tonsillitis, pharyngitis, nasopharyngitis, and otitis media. This is one of the main reasons of the workplace/ school absenteeism. Viruses are the primary cause of the majority of the acute URTIs, 30% required consultation and 25% required admission for injectable antibiotic².

There have been prior reports in the literature of the inappropriate use of medications to treat upper respiratory tract infections causing antimicrobial resistance. GPs have key role to optimizing antibiotic.³ In addition to raising the overall expense of healthcare, this could lead to the emergence of medication-related issues such adverse drug reactions and drug resistance. Acute tonsillitis is mostly viral.⁴ARI accounts for about one fourth hospitalisations in underdeveloped nations, and huge number of primary care clinic visits and about half of outpatient antibiotic use are related to pharyngitis and tonsillitis.⁴ Another study found that untreated acute tonsillitis patients may have potential serious complications i.e. peri-tonsillar abscess, rheumatic fever and glomerulonephritis⁵.

Most antibiotic prescriptions are for ENT infections that are thought to have a viral aetiology. Adenovirus, Epstein-Barr virus, and influenza viruses are among the viruses that cause acute tonsillitis. Symptomatic treatment for these infections includes mouthwashes, antipyretics, and anti-inflammatory medications⁶. According to a number of studies, antimicrobials are prescribed in the management of URTIs because of drug-related issues linked

with inappropriate usage. An assessment of Cochrane reviews revealed the limited role of antibiotics in acute tonsillitis of viral aetiology. Antimicrobials were listed as the fourth most commonly prescribed medication in basic healthcare facilities in a Middle Eastern study that was published.⁷ According to recent findings, amoxicillin's effectiveness in treating acute tonsillitis may be declining as well. The most effective treatments both bacteriologically and clinically are cephalosporins when used alone or in combination with metronidazole in cases where anaerobes are suspected. Complications of tonsillitis became rare in developed countries⁸.

The pattern of antibiotic prescriptions varies from globally and regionally. This variation is caused by a number of causes, including such as the cost, doctor preference, antimicrobial susceptibility, and infectious organisms. Thus, it is essential to regularly assess and track drug use patterns in order to allow for appropriate adjustments to be made in prescription practices. This will maximise therapeutic benefit and minimise side effects, allowing for optimal treatment outcomes^{7,8,9}. Studies on drug usage aim to thoroughly examine the medications that are supplied to patients. These aids in developing protocols that outline ideal drug use, giving practitioners feedback, and encouraging appropriate drug use by teaching patients.

The objective of this study was to determine the antimicrobial prescription pattern in adult patients with acute tonsillitis, attending OPD of a tertiary care hospital.

METHODOLOGY

This was a cross-sectional study conducted in the department of ENT, Kulsum Bai Valika, Post Graduate Teaching Hospital, Karachi. This study was done during twelve months from 1st January 2023 to 31st December 2023 to assess the prescription pattern for antibiotics among patients who had acute tonsillitis. The patients with an acute tonsillitis diagnosis who saw the ENT outpatient department at KV S.I.T.E. Post Graduate Teaching Hospital.

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Ethical approval was sought from Institutional Review Board. The exclusion criteria included the patients or the attendants who did not give consent for inclusion in study. A proforma was used for data collection, The Variables included age, gender, prescribed antimicrobial agents, mode of drugs use (oral or injectable). Statistical analysis was carried out using SPSS 23.

RESULTS

A total of 210 acute tonsillitis patients, with 116(55.23%) were male. Mean number of the drugs in prescription 4±1.4. All the prescriptions included antimicrobials, whereas 185(88%) with NSAIDs (Table 1).

Table 1: Commonly prescribed drug classes in patients with acute tonsillitis.

Drugs	Number	Percentage
Antibiotics	210	100%
NSAIDs	185	88%
Antihistamine	191	91%
Antitussive or Cough syrups	137	65.2%
Antacids or acid suppressors	56	26.7%

Overall 210(100%) of the prescriptions included Antibiotic, with 192(91.4%) with Single antibiotics, and 18(8.6%) with two antibiotic drugs. This was also noted that 68(32.4%) were prescribed with injectable antibiotics (Figure 1).

Figure 1: Distribution of injectable antibiotics in prescription

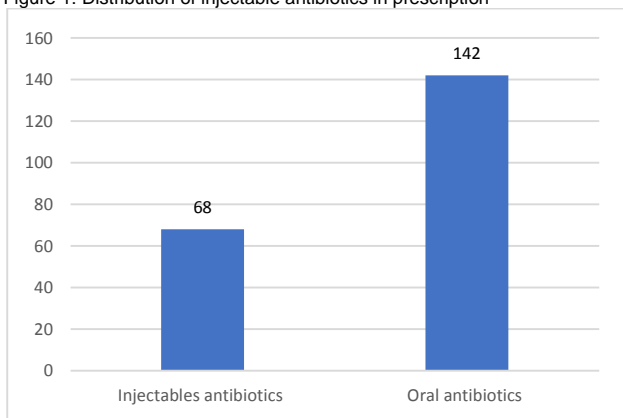


Table 2: Frequency distribution of age among patient of Acute Tonsilitis

Age group	Number	Percentage
< 20 years	86	41%
21-40 years	72	34.3%
41-60 years	43	20.5%
61 plus years	9	4.3%

The age group of ≤20 years was the most frequently observed age group, while the age group of 61 and above years was the least reported (Table 2).

None of the patients was offered culture or sensitivity test of the microorganisms. The most commonly prescribed antimicrobial drug classes were Amoxicillin / Clavulanic acid 80(38%), Ceftriaxone 69(32.8%), azithromycin 42(20%), erythromycin in 15(7.14%), 1st generation cephalosporins 18(8.6%) patients, and metronidazole 19 (9%) (Table 3).

Table 3: Antibiotic prescribed to patients with Acute Tonsillitis

Antibiotic	Number	Percentage*
Amoxicillin / Clavulanic acid	80	38%
Ceftriaxone	69	32.8%
Azithromycin	42	20%
Metronidazole	19	9%
1 st generation cephalosporins	18	8.6%
Erythromycin	15	7.14%

More than one antibiotics prescribed

DISCUSSION

The current study explored the patterns of the prescription in patients of the acute tonsillitis reporting outpatient department of otorhinolaryngology of the tertiary care hospital. This study found that all of the patients of the acute tonsillitis were prescribed with any antibiotics. Most commonly reported age group was less than 20 years of the age. In a study conducted on patients of the acute tonsillitis on average 3.24 medications were prescribed and comparable to current study antimicrobial agents (AMAs) were present in 95% of the prescriptions. The most often administered class of medications was antibiotics and the two most often given AMAs were azithromycin (20.63%) and amoxicillin (38.80%). In current study it was Amoxicillin / Clavulanic acid 80(38%), and Ceftriaxone 69(32.8%). In that study overall 14.75% of instances was a culture and sensitivity test recommended, whereas in current study none of the patients was advised culture and sensitivity. In a study GPs used antibiotic for acute tonsillitis in 92(89.3%) while gave symptomatic treatment in 101(98.1%)⁹.

In a study, it was noted that antibiotics were administered to 88.8% of patients with acute tonsillitis. The clinical picture and the symptoms are the main factors used to make the diagnosis. According to the standards, only 23.6% of the patients received treatment with antibiotics (Penicillin V and cephalexin)¹⁰. Similar findings were also reported from other studies as there was a little greater male preponderance, consistent with earlier findings about ear, nose, and throat infections.^{8,9,10} It turned out that most of the patients were in the 20–29 age range, with the elderly group having the lowest rates. Several research studies have revealed a similar result^{9,10,11}. Penicillin and cephalosporins, which belong to the β-lactam antibiotic class, were found to be the most often prescribed antibacterial categories. Majority of patients received amoxicillin (56.7%) in prescriptions¹¹.

In another study, 273/389 patients with tonsillitis were analysed-186 children, 87 adults. Based on the Centor score documented signs/symptoms, antibiotics were prescribed inappropriately to 196/273 patients (80%; 95% CI 74% to 85%) including broad-spectrum antibiotics to 25%. These included co-amoxiclav (18%), amoxicillin (6%), azithromycin (0.5%) and ceftriaxone (0.5%). TSs were taken in 66/273(24%) patients; 10/66 were positive for group A streptococcus (GAS). However, 48/56 GAS negative patients were prescribed macrolides and penicillin antibiotics¹².

This result was consistent with a number of earlier research by in the current analysis, the most often used individual medications were amoxicillin clavulanate, and ceftriazone in line with a previous studies. The preponderance of mixed group infections and the rise in antibiotic resistance may be the cause of the prescription of amoxicillin/clavulanate and third-generation cephalosporins, which push doctors to select antibiotics with a wider spectrum of activity such as amoxicillin (55.4%)^{12,13}. The typical quantity of medications taken is an significant metric for evaluating reasonable prescription practices. In order to prevent bacterial resistance, treatment-related expenses, poor patient compliance, increased risk of drug interactions, and adverse drug effects, the mean number of prescribed drugs should be kept to a minimum. The current study's finding suggests using rationalisation while prescribing medications in order to reduce the overall amount of medications prescribed.

In the current investigation, the antimicrobial prescription culture was not supported by swab sensitivity data proved to be helpful resources for clinicians in helping them choose the best antimicrobial drugs for each patient. Antimicrobials were prescribed for upper respiratory tract infections in almost 80% of cases, according to a previous study¹⁴. Among the interesting results was the fact that, in comparison to previous studies, a sizable fraction (41%) of the antibiotics were administered parenterally (Ceftriaxone). In contrast to this research a study in which only 16% of patients received treatment via a parenteral method¹⁵. This result was most likely caused by the patients' abrupt illness

presentation, which required parenteral antibiotics in most cases. Amoxicillin and Clavulanic acid made up almost 30% of the most often used antibacterial fixed dosage medication combination. Similarly a study found that In a study patients of acute tonsillitis were divided into two groups, group-1 used an i.v. combination of ampicillin + sulbactam plus the tonsillar membranes of patients were cleaned or debrided daily. The group-2 used only the i.v. combination of ampicillin + sulbactam. Patients who received antibiotic therapy and debridement had a significant clinical improvement than the patients receiving only antibiotics¹⁶.

The strength of the study is that it highlighted several rational prescribing practices and newer trends in the administration of antimicrobial agents. One of the study's limitations was that because it was conducted at a single centre, the conclusions could not be broadly applied to the entire area.

CONCLUSION

Antimicrobials that were prescribed in almost all cases of acute tonsillitis, and most frequently prescribed were Amoxicillin / Clavulanic acid and Ceftriaxone. Injectable antibiotics were also prescribed very frequently. Most of the patients were given just one antibiotic. This study findings highlighted the gaps the rational practices in drug prescribing for acute tonsillitis.

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1. Conception and design of or acquisition of data or analysis and interpretation of data.
2. Drafting the manuscript or revising it critically for important intellectual content.
3. Final approval of the version for publication.

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