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Incidence and empiric use of antibiotics therapy for tonsillitis in children

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Abstract

Background: Tonsillitis is one of the most severe recurrent throat infections that can lead to cancer or death. Diagnosis of acute tonsillitis is clinical & rapid antigen test is performed for diagnosis of tonsillitis.

Objectives: The study involves the use of antibiotics in children, management of acute exudative tonsillitis & to explore the opportunities for pharmacist regarding management of acute exudative tonsillitis.

Methods: An observational study was conducted to study the prevalence, pharmacotherapy, drug utilization during the period of June 2017-August 2017. A data collection form was designed and was filled during face to face interviews with the patients, and physicians. Data was represented in percentage.

Results: The study showed that 60% of patients have family history, 40% of patients are recommended for surgery, Symptoms such as trouble in swallowing, pain in throat shows prevalence 12% & 24% respectively, drugs prescribed per patient are 2-3 & drugs commonly used are augmentin, levofloxacin, amoxicillin.

Conclusion: It was concluded that tonsillitis have variable etiologies but most common are bacterial & viral infections. Medication mostly prescribed are antibiotics, NSAIDs, cephalosporins & macrolides but if patient is unresponsive to medications, surgery is recommended.

Keywords: Tonsils, children, antibiotics, treatment, surgery

Introduction

Tonsillitis is inflammation of pharyngeal tonsillitis but the inflammation usually extends to the adenoid and the lingual tonsils; therefore, the term pharyngitis may also be used [1]. Many organisms can induce inflammation of the tonsils. These include bacteria, viruses, yeasts, and parasites. Some of the infectious organisms are part of the normal oropharyngeal flora whereas others are external pathogens. Because the oropharynx is colonised by many organisms, most infections are polymicrobial. These organisms work synergistically and can be demonstrated in mixed aerobic and anaerobic infections [2].

Signs and Symptoms include sore throat, fever & headache, tiredness, enlargement of the tonsils, trouble in swallowing and snoring [3].

In order to diagnose, health-care professional conducts a physical examination of throat and neck area in order to view the symptoms. Tonsillitis caused by viruses looks very similar to bacterial tonsillitis, therefore diagnostic testing may be required to differentiate between the two potential causes. Throat swab test, CBC test & rapid antigen detection tests are used for differentiation between the causes [4].

Antibiotics are frequently given to children with acute exudative tonsillitis. To evaluate the incidence and use of empiric antibiotic therapy, we conducted a survey in the pediatric room. It has been reported that the treatment of acute tonsillitis focuses on controlling pain and fever. Medications used for pain relief & fever are paracetamol, ibuprofen suspension, combination therapy of ibuprofen with pseudoephedrine HCl and nimesulide whereas for sore throat relief are lozenges, warm salt water gargle, dissolved aspirin gargle [5]. If the tonsillitis is caused by bacteria then antibiotics prescribed are penicillin (amoxicillin) and fluoroquinolone antibiotic (levofloxacin). Individuals who fail penicillin therapy may respond to treatment effective against beta-lactamase producing bacteria such as clindamycin & amoxicillin-clavulanate. When tonsillitis is caused by a virus,

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the length of illness depends on which virus is involved. Usually, a complete recovery is made within one week; however, symptoms may last for up to two weeks. Chronic cases may be treated with tonsillectomy [6].

Tonsillitis is managed by means of treatment according to viral and bacterial infection. Viral tonsillitis treatment involves rest, recovery and symptom relief. It is also important to drink plenty of fluids and have regular meals (soft foods and smoothies are best) whereas bacterial infection is confirmed by throat culture and antibiotics will be prescribed to prevent complications [7]. It is important to take the full course of antibiotics as prescribed to prevent the infection. Antibiotics will not be prescribed for viral tonsillitis because antibiotics are not effective against viruses. Viral tonsillitis will usually get better without treatment. Pain relief and reduction of fever can be achieved with over-the-counter paracetamol (e.g. Panadol) and ibuprofen [8]. Gargling salt water (half teaspoon of salt to a cup of warm water) may provide some symptoms relief as may sucking on hard sweets or throat lozenges containing ingredients that are cooling, anaesthetic, anti-septic, anti-inflammatory. Corticosteroids such as dexamethasone or prednisone may be prescribed to reduce inflammation and swelling, particularly when it is making swallowing and breathing difficult [9,10].

Roles of pharmacist in acute tonsillitis treatment is to analyze the prescription, advice about the ADR's, advice the patient to take medications at right time & precautions after surgery and also guide the patient about diet which can reduce the severity of the disease.

Materials and Methods

An observational study design was adopted using convenient sampling technique, during the period June-2017 to August-2017. 50 sample sizes were taken and study carried out in three major hospitals of Lahore i.e Sir Ganga Ram hospital, Children hospital & Services Hospital, Lahore.

Inclusion and Exclusion Criteria

Patients diagnosed with tonsillitis between age 5 to 16 years were included & adults (above 16 years) & children with other respiratory diseases were excluded.

Ethical Considerations

The study was conducted after obtaining ethical approval from the Institute of Pharmacy of Lahore College for Women University. The institute provided ethical approval after assessing informed verbal consent submitted with all components of the research protocol. The verbal consent of questionnaire was asked before data filling. The participants for the study were asked whether they were willing or unwilling after hearing about the consent of the study and this was confirmed by their response shown as yes or no. Data collection was carried out after the confirmation of the willingness of the participant. The data was recorded anonymously in order to ensure confidentiality and privacy of the participant.

Results

Table1 shows about Age and gender distribution, household remedies, family history, knowledge of correct dose & problem in taking medicines.

Figure1 explains about signs & symptoms. Signs & symptoms experienced by patients are trouble in swallowing, pain in throat, nasal obstruction, tiredness, fever, headache & snoring and their prevalences are 12%, 24%, 16%, 8%, 28% 12% respectively.

Figure2 illustrates that 70% of patients preferred pharmacological treatment.

Figure 3 explains about medications and medications used by patients are Augmentin, Brufen suspension, Nims, Panadol, Levofloxacin, Amoxicillin, Arinac forte and their prevalences are 70%, 60%, 20%, 60%, 70%, 30%, 60%.

Figure 4 explains about surgery recommendation and 40% of patients are recommended with surgery.

Discussion

Tonsillitis is inflammation of the tonsils. It's usually caused by a viral or bacterial infection. Tonsillitis is a common condition in children but can occur in teenagers and young adults.

An observational study was designed to evaluate prevalence, pharmacotherapy, drug utilization in patients having tonsillitis in 3 teaching hospitals of Lahore i.e Services hospital, Sir Ganga Ram hospital & children hospital. Study was carried out on 50 subjects and executed over 2-3 months.

Family history in tonsillitis is important and 60% of patients have family history. Tonsillitis was more common among female children as compared to male children and the major symptoms that has brought him /her to hospital are pain in throat, nasal obstruction, fever & headache & trouble in swallowing. The prevalence of tonsillitis is more in children with age 10-15 yrs i.e 68%.

I observed that in some patients tonsils was not cured by medication therapy alone and requires surgery i.e tonsillectomy. Surgery was recommended to 40% of patients and the underlying reason was that the patient seems to be unaware of complications that might develop if medical attention or medication therapy was not taken in initial stages of disease.

Common symptoms experienced by tonsillitis patients are trouble in swallowing, pain in throat, nasal obstruction, tiredness, fever along with headache & snoring and their prevalences are 12%, 24%, 16%, 8%, 28%, 12% respectively.

Mostly, drugs were prescribed by their brand names & the reason is that government hospitals provides medicines to the patient from their own hospital pharmacy free of cost so the physicians prescribe by the already available brands. Patient showed an increased level of awareness towards taking medicine especially allopathic medicine rather than alternative type of medicines regularly. However, patients didn't prefer to make lifestyle changes. 18% of patients have compliant to their medication and 90% of patients have correct knowledge about their doses.

The patient load was found to be very high in all 3 hospitals and patient complaints that physician doesn't give them enough time & just quickly prescribe the medication, thus patients were not ensured satisfied with their visit and had a lot of queries which they were unable to ask.

Number of pharmacists appointed in hospital settings are very less. Integrating pharmacists in this setup can greatly improve patient satisfaction, patient outcome as well as result in sharing of heavy patient load. Appointing pharmacists in hospitals as staff members in each

department will not only help with the patient load but also improve the quality of services provided, higher consultation time, knowledge of correct doses, prescribing

with generic names, using medicines appropriately after selection.

Table 1: patient demographics, family history, household remedies, correct dose knowledge, problem in taking medicines, prescribing trend.

Parameters	Variables	Frequency n=50	Percentage
Sex	Male	16	32%
	Female	34	68%
Age	5-10 years	16	32%
	10-15 years	34	68%
Family History	Yes	30	60%
	No	20	40%
Household remedies	Yes	35	70%
	No	15	30%
Knowledge of correct dose	Yes	45	90%
	No	5	10%
Problem in taking medicine	Yes	9	18%
	No	41	82%
Prescribing trend	Generic	10	20%
	Brand	40	80%

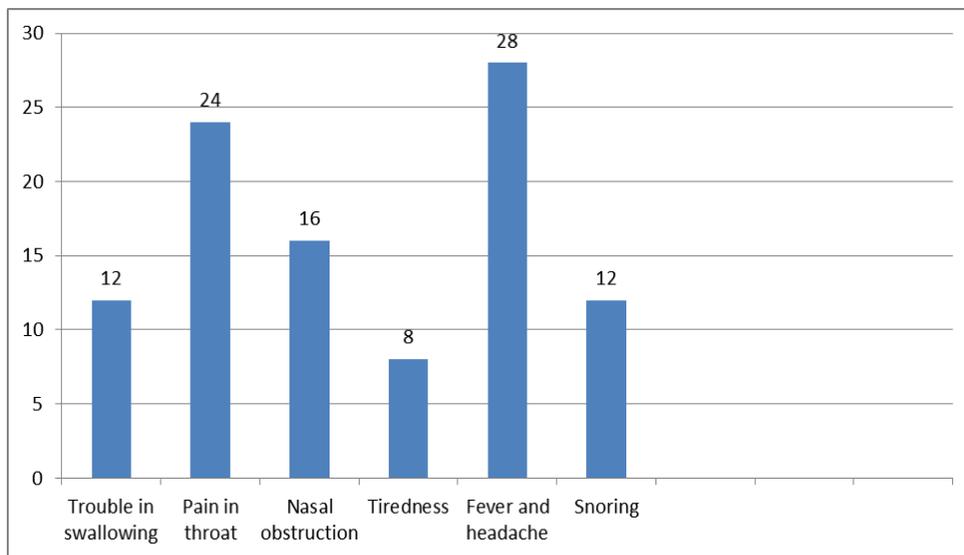


Fig 1: Signs and Symptoms

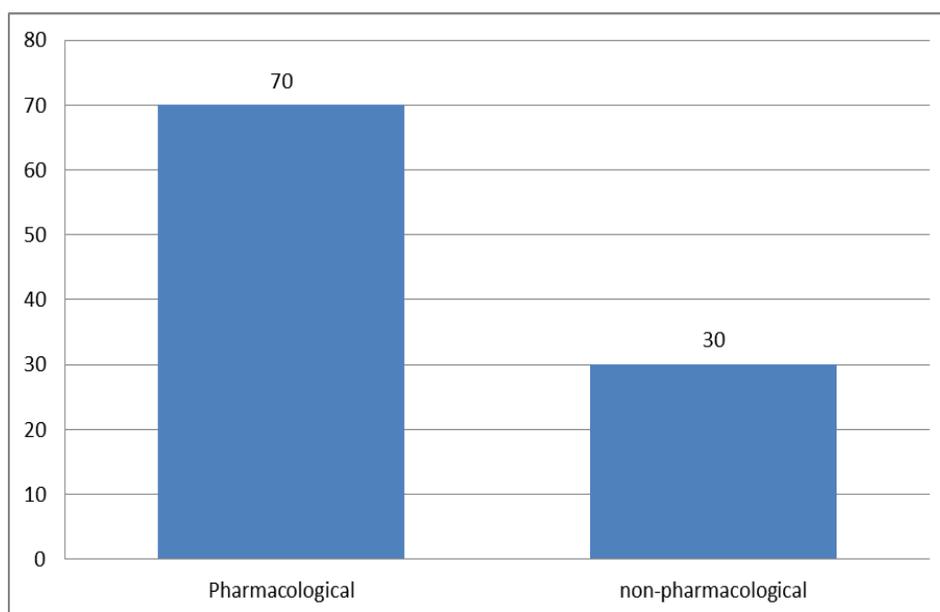


Fig 2: Preferred treatment

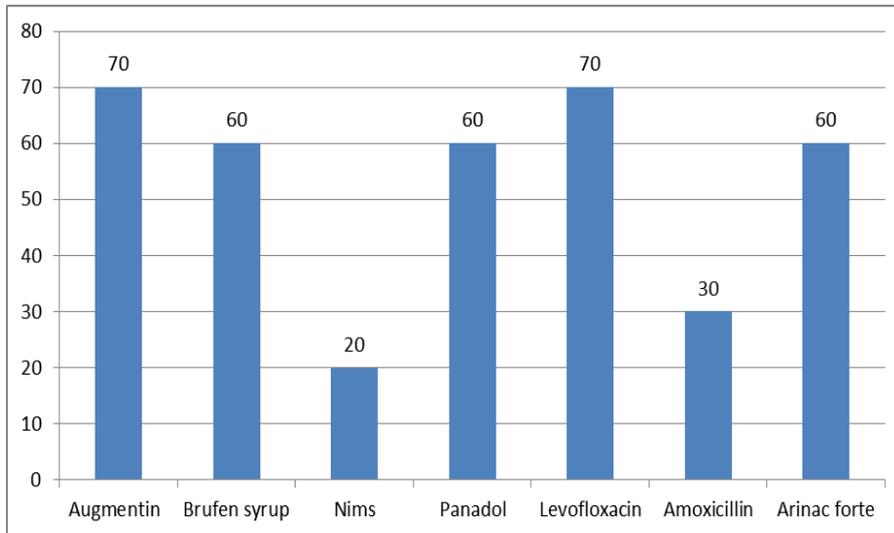


Fig 3: Medications

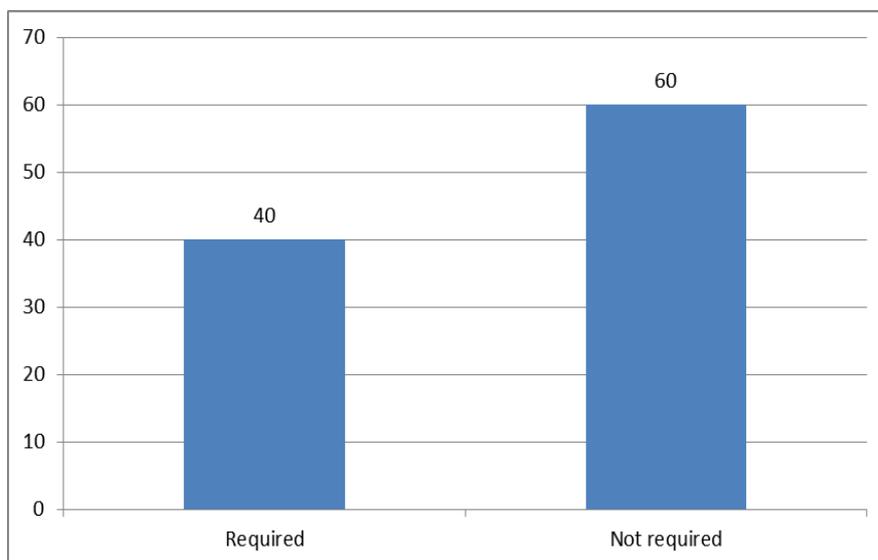


Fig 4: Surgery

Conclusion

In conclusion it is evident from our study that tonsillitis is a common public health problems in Pakistan and have variable etiologies. Most common etiologies observed during study was bacterial and viral infection. The most common bacterium causing tonsillitis is Streptococcus pyogenes (group A streptococcus), the bacterium that causes strep throat. Tonsillitis treatment started with antibiotics, Nsaids, flouroquinolone antboitics and penicillins but if disease continues or patient is unresponsive to medication, surgery is recommended. Antibiotics were given to patient after surgery to prevent any further infection and care should be taken. Here, pharmacist should advise patient about his /her medication and should cross check medication errors, if any (multiple prescribing). This will lead to great improvement in patient care.

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