

ADVANCED CLINICAL PHARMACOLOGY AND TOXICOLOGY, THERAPEUTICS

Cost Effective Study on Utilization of Antibiotics in Treatment of Sinusitis and Pharyngitis at Tertiary Care Hospital

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Introduction

A sinus infection, also called sinusitis, is an inflammation of the air cavities in the bones around the nose and eyes. Acute sinus infections often start with inflammation from allergies or a viral infection and sometimes develop into a bacterial infection. Chronic sinus infections are usually due to ongoing inflammation. Structural abnormalities in the sinuses can lead to chronic or recurrent sinusitis. Fungal sinus infections are also seen, especially in people with weakened immune systems [1]. Acute pharyngitis is characterized by the rapid onset of sore throat and pharyngeal inflammation. Absence of cough, nasal congestion and nasal discharge distinguishes bacterial from viral etiologies. It can be caused by a variety of viral and bacterial pathogens [2]. Acute pharyngitis is one of the most common diseases throughout the world, with more than 7 million outpatient hospital visits each year. According to the 2010 National Hospital Ambulatory Care Survey, acute pharyngitis is ranked among the top 20 most-reported diagnoses for outpatient emergency department visits, resulting in an economic burden to society [3]. Pharmacoeconomics is the health care discipline of placing a value on drug therapy. Cost effective analysis is a Pharmacoeconomic method which summarizes the health benefits and resources used by competing health care regimens. It measures cost in rupees or money value and benefits in natural health units which are used as indicators of improvement in health. The results of cost effective analysis are expressed as cost/outcome for different therapies according to guidelines [4]. Our study determines the cost effectiveness of drugs primarily used for treating sinusitis and Pharyngitis by comparing cost of therapy in rupees with outcomes in terms as natural health benefits achieved by the patient. Our main aim is also to provide counseling to the patients regarding disease, medication use and required lifestyle modifications to help the patient to achieve medication compliance and maintain standards in quality of their lives.

Need for the Study

Sinusitis and pharyngitis are the prominent seasonal health issues which may cause economic burden to people having low socio economic status. According to National Institute of Allergy and Infectious Diseases' (NIAID), an estimated amount of 134 million people suffer from chronic sinusitis which is a economic issue to most of the affected population in India. Acute pharyngitis is one of the most common diseases throughout the world, with more than 7 million outpatient hospital visits each year. Hence our study mainly focuses on assessing economic costs of the patients by comparing them with outcomes achieved by the patients and counseling them in appropriate way to enhance their compliance and increase their quality of life.

Review of Literature

1. Jyothi Ramesh [5] conducted a study on "Drug prescribing pattern in acute, recurrent and chronic Pharyngitis" of patients attending ENT department at tertiary care hospital and concluded that acute, recurrent and chronic bacterial Pharyngitis can be effectively treated by empirical use of various antibiotics and Co-amoxiclav can be considered as the primary option because of the proven efficacy, good tolerability and low cost. Other antibiotics like cefpodoxime+clavulanic acid, cefadroxil+clavulanic acid, cefuroxime, cefixime+clavulanic acid and levofloxacin can be considered as alternatives.
2. R Deepaet [6] conducted a study on the prescription patterns of paranasal sinusitis of patients attending ENT department at tertiary

care hospital and concluded that acute, recurrent and chronic bacterial paranasal sinusitis can be effectively treated by empirical use of various antimicrobials and Co-amoxiclav can be considered as the primary option because of the proven efficacy, good tolerability and low cost.

3. Ahmad Abdulrahman Almeman [7] conducted a study on "Cost analysis of Medications Used in Upper Respiratory tract infections and Prescribing Patterns in University Sans Malaysia, Penang, Malaysia" and concluded that 90% among the patients were prescribed an antibiotic, 81% were prescribed an antihistamine, 81% were prescribed an analgesic, and 21% were prescribed a mucolytic or an expectorant. In this cost analysis for prescribed medications was calculated as the net cost of the prescription accounts for collective costs of the medications in that prescription. This correlates with our study for assessing the cost of medications prescribed per each patient.
4. Debjit Bhowmik [8] conducted review on "Pharmacoeconomics" and explained the types, importance and benefits of pharmacoeconomic studies from patient's perspective. This mainly correlates with our study of analyzing cost burden on patients.
5. Liubov Kavaliauskienė [9] conducted study on "Analysis of the cost-effectiveness and costs rationalization of antidepressants consumption in Lithuania" and illustrated the methods of calculating defined daily dosage of medications for conducting cost effective analysis which is the main methodology involved in our study.
6. MDL Muñoz-Carlin [10] conducted a study on "Cost-effectiveness of Acute and Chronic Rhino sinusitis at the Mexican Institute of Social Security (IMSS)" and determines cost effectiveness of treatments of patients with acute and chronic sinusitis at the Mexican Institute of Social Security (IMSS). They defined Effectiveness outcome as the percentage of cure and this information was taken from the literature. At last they concluded that Ciprofloxacin is a cost-effective alternative for both, acute and chronic sinusitis; however, amoxicillin with clavulanate is also a good cost effective alternative in acute rhino sinusitis.
7. Claudine Laurier [11] conducted a study on "Economic Evaluation of Antibacterials in the Treatment of Acute Sinusitis" and evaluated the cost effectiveness of antibiotics, mainly amoxicillin, amoxicillin/clavulanate, azithromycin, cefaclor, cefuroxime axetil and clarithromycin and the main outcome measured was the proportion of patients showing resolution or improvement of their symptoms. They concluded that the place of amoxicillin as a first choice agent for acute sinusitis, with low dose clarithromycin and azithromycin as second choices in terms of cost effectiveness.

Aim of the Study

Our main aim of the study is to assess the cost effectiveness of antibiotics used in the treatment of sinusitis and Pharyngitis and counsel the patients to achieve medication compliance.

Objectives of Study

- To observe the utility of drugs prescribed for sinusitis and Pharyngitis.
- To determine the cost effectiveness of antibiotics given for sinusitis and Pharyngitis.
- To counsel the patients regarding medication usage and improve medication compliance for better outcomes and also regarding life style modifications to be followed for sinusitis and Pharyngitis to ultimately increase the quality of life of patients.

Methodology

- **Study design:** It is a prospective observational study which includes patients with sinusitis and Pharyngitis from ENT department of Santhiram Medical College and General Hospital to

study the cost effectiveness of antibiotics given for sinusitis and pharyngitis.

- **Source of data:** Clinical data is planned to collect from prescriptions of the patients by obtaining written informed consent forms and questionnaires.
- **Study period:** 6 mon.
- **Study site:** Santhiram Medical Institutions, Nandyal, which is a tertiary care teaching hospital with approximately 700 bedded capacity.
- **Study population:** All out patients in ENT Department who are diagnosed with sinusitis and pharyngitis.

Methods of Collection of Data

- By observing prescriptions.
- By observing medication costs and questioners.

Sample size: Minimum 100

SAMPLING CRITERIA

1. Inclusion criteria

- Patients with age group of >18 years.
- Patients with age group of below <64 years.
- Patients receiving the medications for sinusitis and Pharyngitis.

2. Exclusion criteria

- Patients with other co morbid conditions.
- Pregnant and lactating women.

Ethical Clearance

- Institutional ethical committee approval is awaited for proposed project work.

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