

Judicious Use of Antibiotics in Viral Infections

Meena K. Nandimath¹, Nagesh Babu C.V.²

Department of Pharmacology, ¹Rajarajeshwari Medical College and Hospital, Bangalore, Karnataka
²Dhanalakshmi Srinivasan Medical College & Hospital, Siruvachur, Perambalur, India

Abstract: Antibacterial account for nearly 20% of all new and repeat prescriptions each year. 64% of the total antibacterial prescribed are not indicated. By using data on prescriptions and prescribing practices with the help of a drug utilization study may help us to identify the problems, suggest the remedial measures and promote rational use. Most instances of URTI, the frequently occurring illness of childhood are of viral origin and resolve spontaneously. Antibiotic treatment is needed only if symptoms persist for 10-14 days. The objectives of the study was (1.) To analyse prescriptions for patients aged 1 to 14 years diagnosed with upper respiratory tract infection; (2.) To see the rationality of the drugs prescribed. Two hundred (200) prescriptions from paediatric OPD were collected and analysed. The commonest illness encountered was Non-specific URTI, 92 (45%) prescriptions were with antibiotics out of total 200 for respiratory infections where antibiotics use cannot be justified. It is of great importance to identify, among ARI patients those who will benefit from the use of antibiotics. The establishment of recommendations for the prescription of antibiotics is one strategy for minimizing the frequency of bacterial resistance.

INTRODUCTION

Upper respiratory tract infections (URTIs) are mostly caused by viruses in about 80% of cases. Antibiotic misuse for viral URTIs in children is a serious problem that results in resistant strains of bacteria. The common cold, acute pharyngotonsillitis, acute otitis media, acute sinusitis, acute bronchitis, influenza and acute epiglottitis are the most frequently encountered acute URTIs in out-patient clinics. This article recommends the judicious use of antimicrobial agents for these seven common paediatric URTIs, based on the recommendations of the American Academy of Paediatrics.

Recommendations to rationalize the use of antibiotics in patients with ARI have the common objective of minimizing unnecessary antibiotic use, since "antibiotic pressure" is one of the factors triggering bacterial resistance.

The increasing overuse is associated with the adverse drug reactions. Rational use of antibiotics reduces emergence of resistant strains.

Rational drug use means prescribing right drug, in adequate dose for the sufficient duration and appropriate time to the clinical needs of the patient at the lowest cost. The concept of rational drug therapy is age old as evident by the statement "Medicines are nothing in themselves but are the very hands of god if employed with reasons and prudence."

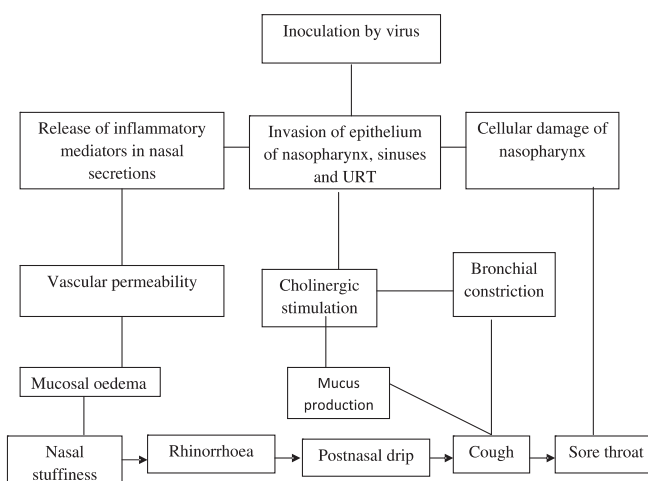
The infections of these-URT are common causes of morbidity in children, the most frequently occurring illness of childhood¹ and one of the most common reasons for pediatric consultations².

The CDC in collaboration with the American Academy of Paediatrics (AAP) recommend stringent diagnostic criteria's for URTIs to avoid misdiagnosis and inappropriate antibiotic prescriptions³. Antibiotic treatment is beneficial to children only if symptoms persist for 10-14 days without improvement.

Antibiotic is highly misused medicine. The quality of medical care requires prescribing to be judicious, appropriate, safe, effective and economic. The aim is to achieve clinical benefit with minimum risk at cost effective price while respecting the patient's choice⁴. The study attempts to analyze the current prescription patterns of drugs used in the treatment of URTI.

Setting standards and assessing the quality of care through performance review should become part of everyday clinical practice⁵.

Pathophysiology of the common cold



Irrational prescribing is a habit that is difficult to cure. However, prevention is possible by interventions such as short problem based training course in pharmacotherapy⁽⁷⁾ and rational use focused workshops.⁽⁸⁾

MATERIALS AND METHODS

A non-interventional, prospective, observational study was done at pediatric OPD of a tertiary care hospital for a period of 6 months.

Inclusion criteria - Outpatients - Aged 1- 14 years with URTI - Exclusion criteria - Lower respiratory tract infection - Gastrointestinal infections.

Permission to collect the data was taken from the Head of the department of pediatrics before starting the study. Patients with the diagnosis of URTI were enrolled for the study.

Age and sex details of the patients were collected.

The prescription data for children with diagnosis of URTI from the outpatient record of each patient was collected in a separate proforma. The study included only one prescription per patient.

The details of the data collected were transferred into Excel worksheet.

RESULTS

A total of 200 URTI prescriptions of children aged 1-14 years with symptoms (less than 7 days duration) of running nose or blocked nose, cough, sore throat, ASOM without any other localizing symptoms were analyzed.

Correspondence: Dr. Meena K. Nandimath, Department of Pharmacology, Rajarajeshwari Medical College and Hospital, Bangalore, Karnataka, India
 Tel: +919448040460
 e-mail: drminaxikn@gmail.com

All the prescriptions had complete documentation of information, including patients demographic characteristics, provisional diagnosis, drug name, dose route and frequency of intake.

The age group 1-5 years accounted for the highest number 116 (58 %) of patients. Out of 200 patients 108 (54%) were male and 92 (46%) were female. The age and sex distribution of outpatients is shown in Table 1.

Table 1 : Gives the list of diseases for which the drugs were prescribed

Illness	Number	Percentage (%)
Acute laryngitis	1	0.5
Acute pharyngotonsillitis	2	1.0
Rhinorrhoea / rhinitis	3	1.5
Acute sinusitis	2	1.0
Acute tonsillitis	11	5.5
Otitis Media / externa	4	2.0
Acute Pharyngitis	2	1.0
Non-specificURTI	175	87.5

Analysis of drug prescribing patterns

Table 2: Prescribing indicators among outpatients

Parameter	Number
Total number of patients prescriptions analyzed	200
Total number of drugs prescribed	430
Average number of drugs per encounter	2.15
% of encounters with an antibiotic prescribed	45
% of encounter with an injection prescribed	0.5
Number of drugs from WHO essential drug list out of total number of drugs prescribed	18(4%)
% of FDC prescribed	38

As shown in table 2, only 4% patients were prescribed drugs from the WHO essential drug list.

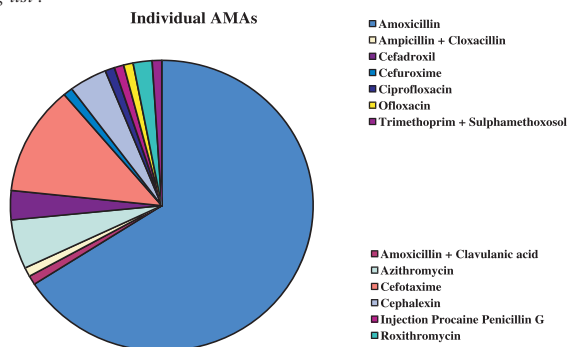


Fig 1: Distribution of Individual Antimicrobial Agents AMAs Amongst antimicrobials Amoxicillin was prescribed for 60 (65%) patients followed by Cefotaxime 11 (12%),azithromycin 5 (5.4%), cephalexin 4

(4.0%), roxithromycin 2 (2.0%), Cefuroxime 1 (1.0%), ciprofloxacin 1 (1.0%), ofloxacin 1 (1.0%), amoxicillin + clavulanic acid 1 (1.0%), ampicillin + cloxacillin 1 (1.0%), trimethoprim + sulphamethoxosol 1 (1.0%).

DISCUSSION

Audit studies can and should become a method of increasing job satisfaction and means of education for health professionals, rather than being perceived as a threat or another bureaucratic burden⁸.The majority of childhood URTI are caused by viruses which do not require antibiotics⁹.

The average number of drugs / prescription was 2.15, the lower number of drugs noted is a welcome sign and needs to be encouraged. There may be an increase in compliance, lower cost of therapy and decreased risk of drug interactions when lesser number of drugs are prescribed.Most of the drugs were prescribed by brand name.

The combination of Ampicillin + Cloxacillin is not synergistic as cloxacillin is not active against gram-negative bacteria and does not inhibit beta lactamase while ampicillin is not active against staphylococci. Thus, the combination only adds to the cost and adverse effect of both drugs.

Prescribing an antibiotic for 45% of patients with URTI is a matter of concern. Besides the drug cost, antibiotic use is not benign, it increases the risk of colonisation with resistant organisms and side effects occur relatively frequently.

Prescribing by generic names has to be encouraged.

A study conducted in a hospital in Mumbai reported that prescriptions with single antibacterial agent were 48.7% and those with two or more antibacterial drugs were 51.3 %⁽¹⁰⁾. Another study carried out in a tertiary care teaching hospital in Eastern Nepal reports that prescriptions with two or more antibacterial agents were 82.3% as compared to prescriptions with single antibacterial agent (17.7%)

There have been many forms of intervention aimed at changing physician’s prescribing behaviour. These have included audit studies, group discussions and feedback, introduction of hospital formulary, guidelines for antibiotics. The benefits of the intervention studies, namely the use of fewer and cheaper prescriptions are shown to disappear overtime, which suggests the need for repeating the intervention at frequent intervals. Rational prescribing messages should be promoted at national and local medical meetings.

Extreme and persistent empirical treatment is one important cause of irrational antibacterial use.

Existing Situation

Most “**Drugged Generation**” “**A Pill For Every Ill**”. The time to “**WAKE UP**” prescribe **RATIONALLY AND NOT FASHIONABLY**

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