

A Study of Drug Use Pattern Among Patients Admitted with Respiratory Tract Infections at a Tertiary Care Teaching Hospital: A Retrospective Study

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ABSTRACT

Background: Upper and lower respiratory tract infections are the two categories into which respiratory tract infections fall. Tonsillitis, pharyngitis, laryngitis, sinusitis, otitis media, some influenza strains, and the common cold are examples of upper respiratory tract infections.

Objective: To study the drug use pattern given to patients admitted with respiratory tract infections in hospital. Cases were collected from MRD and to assess the rationality of these prescriptions given in our hospital

Methodology: A retrospective observational study was conducted for three months from December 2023 to February 2024 in Navodaya medical college, hospital & research centre with a sample size of 100. Data were collected from MRD.

Result: Among the 100 cases collected, most of the respiratory tract infected patients were in the age group of (15-30) years. Most common types of diagnosis in patients were found to be LRTI (36%) infections. Total number of antibiotics that were prescribed were 80 and the most common antibiotic that was prescribed is amoxicillin clavulanic acid.

Conclusion: In this study the prescribing patterns for the management of URTIs in the hospital were inconsistent with current guidelines. Quality use of antibiotics can help prevent the emergence of AMR; At the investigation site the prescribers are not having any standard anti-infection endorsing rules for RTIs nor are they following any standard rules accessible.

Keywords: Prescribing pattern, respiratory tract infection, prescribing indicators, antibiotics.

INTRODUCTION

Respiratory tract infections are the primary cause of most medical consultations. Viruses may be the main cause of these infections. Common colds, pharyngitis, sinusitis, and otitis media are examples

of upper respiratory tract infections, or URTIs. URTIs and lower respiratory tract infections (LRTIs) occur on a continuum and are more often associated with bacterial infections.^[1] Upper respiratory infections are most common in the fall and winter, from September to March, though they can happen at any time. This could make sense given that these are the regular school months, when children and teenagers spend a lot of time in groups and in classrooms. In addition, the low humidity of winter is a breeding ground for many viruses that cause upper respiratory illnesses.^[2] The two types of respiratory tract infections are upper and lower respiratory tract infections. Upper respiratory tract infections include tonsillitis, pharyngitis, laryngitis, sinusitis, otitis media, certain influenza strains, and the common cold.^[3] Overuse and incorrect selection of antibiotic drugs are linked to drug resistance in respiratory infections (namely *Streptococcus pneumoniae*), potential chronic illness development, and higher treatment costs. For a brief period, the choice of antibiotic for prophylaxis should be based on known or probable target infections.^[4]

Upper respiratory tract infections (URTIs) can cause sneezing, facial pressure, runny nose, nasal congestion, headache, low grade fever, and cough. Compared to lower respiratory tract infections, upper respiratory illnesses are less common. All diseases that are irreversible have LRTIs as their main cause of mortality. Pneumonia and bronchitis are the two primary LRIs. Influenza can also result in lower and upper respiratory tract infections. Rhinoviruses, respiratory syncytial viruses (RSV), influenza and parainfluenza viruses, human meta pneumonia virus, and adenoviruses are common causes of ARTI.^[5] Acute respiratory infection (ARI) is the most prevalent illness in children in India, accounting for roughly 20–40% of hospital admissions and 30–50% of visits to medical institutions. Since viruses are the primary cause of most respiratory tract infections, cautious treatment usually results in a spontaneous resolution. It has been shown, meanwhile, that medication therapy is frequently used in these situations without sufficient rationale.^[6] In developing nations like India, upper and lower respiratory tract diseases are highly prevalent. Previous research indicates that one of the most frequent reasons for doctor consultations in our nation is respiratory tract illnesses. Antibiotics are the most used medications for treating any type of respiratory tract infection.^[7]

In When developing an effective treatment for respiratory tract infections, doctors need to be able to differentiate between images that are viral and those that are bacterial.^[8] The majority of the time, viruses cause URTIs; however, bacteria can also cause them occasionally. Therefore, the primary difficulty for clinicians is differentiating between a URTI's bacterial and viral causes. Reliability in determining the source of the infection helps prescribers make logical decisions.^[9] The goal of rational drug use is to reduce the risk of drug-related side effects, the emergence of resistant microbial strains, patient noncompliance, and higher treatment expenses. Although lower respiratory tract illness (LRTI) is often used interchangeably with pneumonia, it can also refer to other types of infection such as severe bronchitis and lung sores. Some of the side symptoms include fatigue, fever, hacking, shortness of breath, and weakness.^[10]

MATERIALS AND METHODS

A retrospective observational study was carried out for 3 months in Navodaya Medical College Hospital & Research Centre, Raichur. 100 cases were collected from MRD. Data was pooled and analyzed. Ethical permission to conduct the study was granted by the institutional ethics committee.

Study Population:

Data were collected from the case sheets using a specially designed data entry form from patients who are

admitted in NMCH&RC in the past 3 months. Participants with both males and females and all age patients are included in the study.

Ethical consideration

The ethical approval to conduct the study was obtained from the Ethical Review Committee of Hospital.

RESULTS

Demographic Data

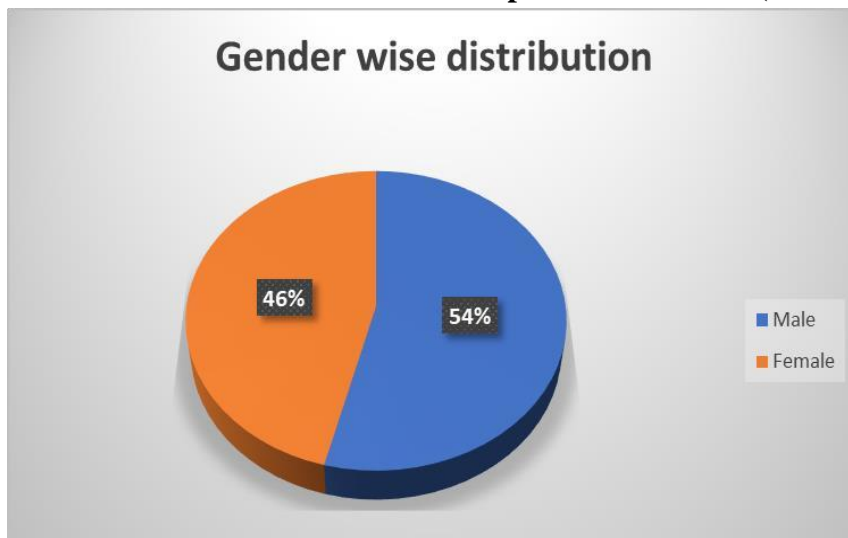
A retrospective observational study was carried out by collecting data from 100 cases who were admitted in hospital. Out of 100 cases most respiratory tract infection patients in the age group of (15 – 30) years. This is depicted in Table 1.

Table 1: Age-wise distribution in RTI patients (n=100)

Age (years)	No. of patients with RTI	Percentage (%)
0 - 15	13	13
15 - 30	28	28
31 - 45	27	27
46 - 60	15	15
>61	17	17

Out of 100 patients the majority of RTI patients where male 54 followed by female 46

Table 2: Gender wise distribution in patients with RTI (n=100)



Out of 100 patients the majority of RTI patients where male 54 followed by female 46

Table 3: Smoking and alcoholic status in RTI patients

Habits	No. of patients	Percentage (%)
Smoking	22	22
Alcoholic	27	27

Alcoholic patients were more (27%) found than smoking habits in patients (22%)

Table 4: Co- morbidity of RTI patients

Co- morbidity	No. of patients	Percentage (%)
DM	11	26
HTN	14	33
Anemia	5	12
IHD	4	9
AGE	6	14
UTI	2	4

Out of 100 patients HTN co- morbidity patients (33%) were most common found in RTI patients.

Table 5: Types of diagnosis in RTI patients

Diagnosis	No. of patients	Percentage (%)
LRTI	36	36
Bronchitis	16	16
Pneumonia	12	12
URTI	21	21
Emphysema	7	7
WALRI	8	8

Out of 100 patients most common types of Diagnosis in patients were found to be LRTI (36%).

Table 6: Prescribing indicators

Prescribing indicators	Value
Total number of drugs prescribed	297
Average number of drugs per encounter	6.8
Total number of encounters an antibiotic was prescribed	80
Total number of encounters where injections wereprescribed	169
Total number of encounters whereEDL drugs wereprescribed	230

According to prescribing indicators Total number of drugs prescribed was 297, average number of drugs per encounter was 6.8, total number of encounters an antibiotic was prescribed was 80, total number of encounters whereinjections were prescribed was 169, total number of encounters whereEDL drugs were prescribed was 230.

Table 7: Drug utilization study of RTI

Drugs		No. of drugs	Total number of drugs	Percentage (%)
Antibiotics	Ceftriaxone	21	80	27.6%
	Azithromycin	15		
	Doxycycline	10		
	Levofloxacin	8		
	Amoxicillin + Clavulanic acid	26		
Bronchodilator	Salbutamol+	17	48	16%

+ Mucolytics	Ipratropium			
	Theophylline	15		
	Bromhexine	6		
Corticosteroid	Dexamethasone	14	14	4.7%
Others	Anti-allergic	12	82	27%
	Vitamins	10		
	Pantoprazole	70		

Total number of antibiotics was prescribed 80 and the most common antibiotic was amoxicillin clavulanic acid (26), total number of bronchodilators + mucolytics were 48 and most common drug was salbutamol + ipratropium (17), dexamethasone (14) was prescribed in corticosteroid group for RTI patients and the other drugs which were prescribed are antiallergic (12), vitamins (10), pantoprazole (70).

DISCUSSION

As of late, the examinations on medicate use have turned into a potential apparatus to be utilized in the assessment of social insurance framework. Quality use of antimicrobials and an increased frequency of antimicrobial resistance have emerged as a major health crisis. Antimicrobial resistance has spread to almost all countries and regions, including Pakistan, owing to the indiscriminate use of antibiotics and poor infection control practices. Several factors contribute to the development of AMR and among those irrational prescribing, free availability of antibiotics, and patient related factors are commonly highlighted in the literature. Within this context, Sulis et al., in their meta-analysis concluded that antibiotics are highly prescribed in primary care and there is a need for urgent action to improve prescription practices, starting from the integration of WHO treatment recommendations and the Aware classification into national guidelines. Out of 100 patients most of RTI patients admitted in the age group of 15-30 followed by 31-45. This is denoted Table 1. Out of 100 patients the majority of RTI patients where male 54 followed by female 46. This is denoted in Table 2. Alcoholic patients were more (27%) found than smoking habits in patients (22%). This is denoted in Table 3. HTN co-morbidity patients (33%) were most common found in RTI patients. This is denoted in Table 4. Most common types of Diagnosis in patients were found to be LRTI (36%). This is denoted in Table 5. According to prescribing indicators Total number of drugs prescribed was 297, average number of drugs per encounter was 6.8, total number of encounters an antibiotic was prescribed was 80, total number of encounters where injections were prescribed was 169, total number of encounters where EDL drugs were prescribed was 230. This is denoted in Table 6. Total number of antibiotics was prescribed 80 and the most common antibiotic was amoxicillin clavulanic acid (26), total number of bronchodilators + mucolytics were 48 and most common drug was salbutamol + ipratropium (17), dexamethasone (14) was prescribed in corticosteroid group for RTI patients and the other drugs which were prescribed are antiallergic (12), vitamins (10), pantoprazole (70). this is denoted in table 7.

CONCLUSION: The prescribing patterns for the management of URTIs in the hospital were inconsistent with current guidelines. Quality use of antibiotics can help prevent the emergence of AMR; At the investigation site the prescribers are not having any standard anti-infection endorsing rules for RTIs nor are they following any standard rules accessible. Doctors should be educated for more appropriate and cost-effective prescribing.

CONFLICT OF INTREST: The authors have no conflicts of interest regarding this investigation.

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ABBREVIATIONS: MRD; Medical Record Department, RTI; Respiratory Tract Infection, DM- Diabetes Mellitus, HTN- Hypertension, AGE- Acute Gastroenteritis, UTI- Urinary Tract Infection, WALRI- Wheezing Associated Lower Respiratory Tract Infection.

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