Research in Pharmacy and Health Sciences

Research Article

Evaluation of Prescribing Patterns in lower Respiratory Tract Infections at Government Hospital – a Retrospective Study

Hemamanogna Narne*, Sushma Nimmagadda, Naveen Yaddanapalli, Koteswari Poluri

Hindu college of Pharmacy, Amaravati Road, Guntur-522 002, Andhra Pradesh, India

ABSTRACT

Objective: The aim of this study was to assess the prescribing trends in Lower Respiratory Tract Infections at Government Fever Hospital. **Methods:** A retrospective, observational, cross sectional study was carried out by collecting prescription of patients admitted to male and female departments of government fever hospital. The data were analyzed by using SAS software. **Results and Conclusion:** Prevalence of LRTIs was observed more in males than in females. Pulmonary tuberculosis was the most frequently observed disease, followed by chronic obstructive pulmonary disease (COPD) and Consolidation. Antibiotics, bronchodilators, corticosteroids, vitamins and minerals and analgesics were most commonly prescribed drugs, of those ceftriaxone was the common antibiotic followed by amoxicillin clavulanate, metronidazole, piperacillin+tazobactum and Salbutamol was commonly prescribed bronchodilator followed by ipratropium. Of corticosteroids dexamethasone was mostly prescribed drug. Other classes of drugs such as vitamins and minerals, anti-fungal, antiemetics, benzodiazepines, proton pump inhibitors, H_2 receptor blockers and antihistamines were prescribed in patients with need. In some patients more number of antibiotics was prescribed, this may lead to development of resistance. But, the severity of the patient condition influences the treatment plan. Of 400 patients included in study, 331 (82.8%) patients were observed with complete prescription and 69 (17.2%) patients with incomplete prescription as 52 patients of them were left against medical advice and 17 patients were absconding.

Keywords: Tuberculosis, lower Respiratory, infections, comorbidity.

INTRODUCTION

Prescription analysis is a very good tool to analyze the prevailing disease pattern and drug use in a community. Irrational prescription leads to ineffective and unsafe treatment, exacerbation or prolongation of illness, distress and harm to the patient along with higher costs [1]. Prescription analysis helps in promoting rational use of drugs in which right drug is prescribed for right condition in the right dose and duration and gives information about any dispensing errors [2]. Drug utilization research is a component of medical audit that plays an important role in pharmacoepidemiological studies. This is because it reports the extent, quality, determinants and outcome of drug exposure. In addition, it helps in assessing the rational usage and cost control of various medications used in the hospital [3].

Problems associated with drug prescriptions are common worldwide. These include mainly medications errors and adverse drug events. Factors involved in drug prescription errors, including polypharmacy, lack of sufficient pharmacological knowledge, errors in patients' charts or documentation by nurses, inadequate pharmacy service, being a female, age >65 years, renal excretion of drugs, drugs with narrow therapeutic index and the use of anticoagulants or

diuretics [4]. Several studies in the United States have consistently reported adverse drug events ranging from 3% to 12% [5].

Infectious diseases remain a significant threat to public health, posing risks to individuals regardless of age, sex, ethnic background, socioeconomic status, or lifestyle [6]. A respiratory tract infection (RTI) is defined as any infectious disease of the upper and lower respiratory tract [7]. In India, acute respiratory tract infections (ARTI) are responsible for one million deaths. Out of these 10-15% a reduce to acute lower respiratory tract infections (ALRTIs) [8].

Lower respiratory tract infections (LRTIs) are frequent and include community acquired pneumonia (CAP), exacerbations of chronic bronchitis (ECB), acute bronchitis (AB), and viral lower respiratory tract infections (VRTI), pulmonary tuberculosis, lung abscess, emphysema etc. Infections of LRTI are responsible for 4.4% of all hospital admissions and 6% of all general practitioner consultations. They also account for 3% to 5% of deaths in adults, especially over the age of 60 years [9].

Although antibiotics are the mainstay of the treatment of respiratory tract infections, but still treatment varies on the basis

www.rphsonline.com

Research in Pharmacy and Health Sciences | Vol 3| Issue 4 | Oct-Dec, 2017;375-382.

of symptoms and existing comorbidities. The prescribing trends in respiratory tract disorders may get changed from time to time, place to place and from physician to physician [10-16]. These changes may associate with development of medication errors and adverse drug reactions, which can be prevented by prescription analysis. The aim of this study is to assess the prescribing trends in Lower Respiratory Tract Infections at Government fever hospital. The objectives of the present study are to analyse the pattern of prescription of antibiotics, bronchodilators, corticosteroids and other drugs in lower respiratory tract infections, to provide information and feedback to prescribers, pharmacists and the public and to raise the general awareness of the problem of diversion and the illicit use of pharmaceuticals. Increased awareness can lead to reductions in drug diversion and abuse.

Demographic details

Analysis of 400 patients with lower respiratory tract infections reveals prevalence is more in males (80%) than in females (20%). Demographic characteristics reveals that the patients of age between 26 to 50 years, followed by 51 to 75 then 1 to 25 and 76 to 100 yrs, this information describes the age effect on disease distribution; patients of weight ranging between 41 to 60 kgs were more followed by 21 to 40 and patients with weight greater than 80 kgs (1%) were also found. Most of the patients were married (92%) at the time of diagnosis; and according to social history, it was found that 25% of patients were ex-smokers and 24% were ex-alcoholics; 38% were still smoking and 41% were still consuming alcohol; 37% don't smoke and 36% don't consume alcohol in their lifetime. This data describes that the individual with a habit of smoking or alcohol consumption is more prone to disease development

MATERIALS AND METHODS

In Government Fever Hospital, at pulmonary department, a total of 100 beds, with bed strength of 3000 annually, a retrospective observational cross sectional study was conducted from November 2016 to April 2017. Patients of all age groups, both males and females and patients with other comorbidities were included in the study and the patients from outpatient department, pregnant women and patients with upper respiratory tract infections were excluded. Thesample size of this study was 400 and the data from the case sheets of the patient was noted on profile forms and entered in excel sheet. The data was analyzed by using SAS software.

RESULTS AND DISCUSSION

The most common diagnosis among 400 patients included in the study is pulmonary tuberculosis (51.75%), followed by chronic obstructive pulmonary disease, consolidation, pulmonary tuberculosis in association with COPD, bronchiectasis, pneumothorax, pneumonia, pleural effusion, haemoptysis, fibrocavity, lymphadenopathy, bronchial asthma, emphysema, kyphoscoliosis and lung abscess. During the study period the lung abscess, bronchiectasis, pneumothorax, haemoptysis, lymphadenopathy, PTB with COPD were not found in females and the prevalence of emphysema, bronchial asthma, fibrocavity, kyphoscoliosis, pneumonia, PTB were more in females and the COPD, Consolidation were more prevalent in males and pleural effusion prevalence is same in both males and females. Prevalence of diseases was given in Table 1.

Table 1 disease distribution

Diagnosis(Disease)	Frequency &Percent	
	Female	Male
Pulmonary Tuberculosis	47	160
	11.75	40
Chronic Obstructive Pulmonary Disease	4	27
	1	6.75
PTB with COPD	0	17
	0	4.25
Pleural effusion	3	12
	0.75	3
Lymphadenopathy	0	10

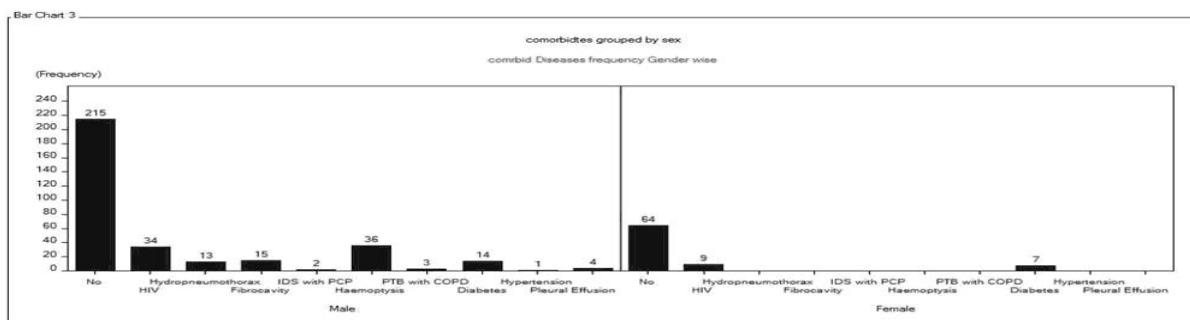|		
	0	2.5
Haemoptysis	0	13
	0	3.25
Consolidation	5	21
	1.25	5.25
Pneumonia	5	10
	1.25	2.5
Pneumothorax	0	15
	0	3.75
Kyphoscoliosis	3	3
	0.75	0.75
Fibrocavity	5	6
	1.25	1.5
Bronchiectasis	0	15

Figure 1: Gender wise distribution of co morbid diseases

In many patients (121), co-morbid conditions were observed that include HIV (10.31%), the most common co morbid condition, followed by haemoptysis (8.63%), diabetes (5.04%), fibrocavity (3.6%), hydropneumothorax (3.12%), pleural effusion (0.96%), PTB with COPD (0.72%), Immune deficiency syndrome with pneumocystis jiroveci pneumonia (0.48%) and hypertension (0.24%). Prevalence of co-morbid conditions is more in males (46.25%) than in females (20%). Gender wise distribution was shown in figure 1.

Chief complaints
Chief complaints described by the patients admitted to the department within the study period include, shortness of breath (30.4%) and cough with expectoration (27.66%) in more number of patients and the other complaints include fever (19%), chest pain (7.23%), haemoptysis (5.95%), vomiting (2.47%), dry cough (24%), wheezing (1.83%), loss of appetite(1.47%), fever with chills (0.82%), cough with SOB (0.64%) and chills (0.27%). Of 320 male patients 896 complaints were reported and in 80 female patients 196 complaints were reported. In comparison, from male patients more number of complaints were reported than from female patients. Chief complaints were listed in Table 2 Chief complaints.

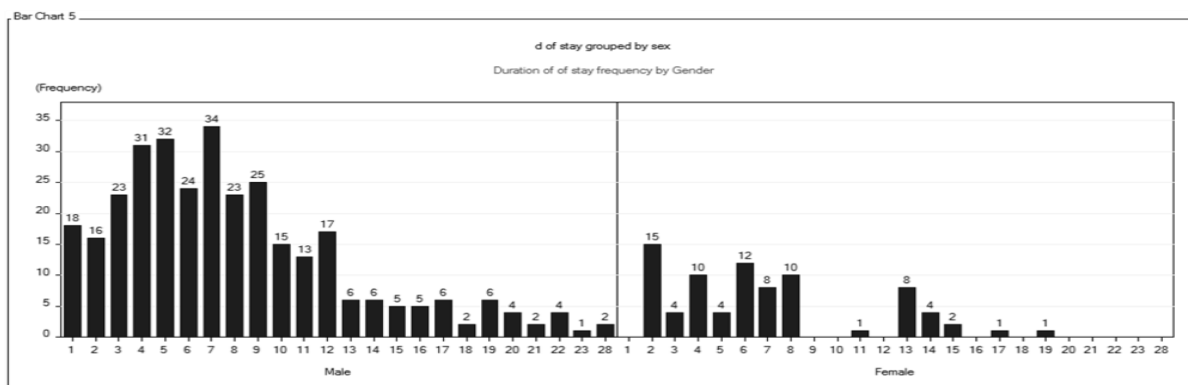| Table of complaints by Gender			
complaints(complaints)	Frequency &Percent		
	Female	**Male**	Total
Shortness of breath	67	265	332
	6.14	24.27	30.4
Cough with expectoration	66	236	302
	6.04	21.61	27.66
Vomiting	6	21	27
	0.55	1.92	2.47
Haemoptysis	5	60	65
	0.46	5.49	5.95
Fever	38	170	208
	3.48	15.57	19.05
Chest pain	7	72	79
	0.64	6.59	7.23
Wheezing	3	17	20
	0.27	1.56	1.83
Chills	0	3	3
	0	0.27	0.27
Cough with SOB	0	7	7
	0	0.64	0.64
Fever with chills	0	9	9
	0	0.82	0.82
Loss of appetite	2	14	16
	0.18	1.28	1.47
Dry cough	2	22	24
	0.18	2.01	2.2
Total	196	896	1092
	17.95	82.05	100

Figure 2: Duration of hospitalization

Duration of hospitalization

Duration of stay in hospital reveals the severity of patient condition and the economic burden, regarding economic burden the cost related to treatment including medicines and surgical procedures, laboratory investigations, food to the patient etc., are paid by the government. Some patients stay in the hospital still discharged by the doctor, but some patients need to get discharge and left against medical advice and some other patients abscond without intimation. These factors influence the duration of stay in hospital. Duration of stay in female patients is less compared to male patients. Large number of patients

hospitalized for four to nine days. The details were shown in figure 2.

Sputum test

Sputum test is performed for the detection of acid fast bacilli to diagnose pulmonary tuberculosis, as this condition is more prevalent and one of the life threatening diseases sputum test is advised in all patients. Of 400 patients 156 (39%) patients were sputum positive and the rest (61%) were sputum negative. Finally, 207 patients were diagnosed with pulmonary tuberculosis and as in other patients (51%) the sputum test is negative and chest x- ray reveals the diagnosis.
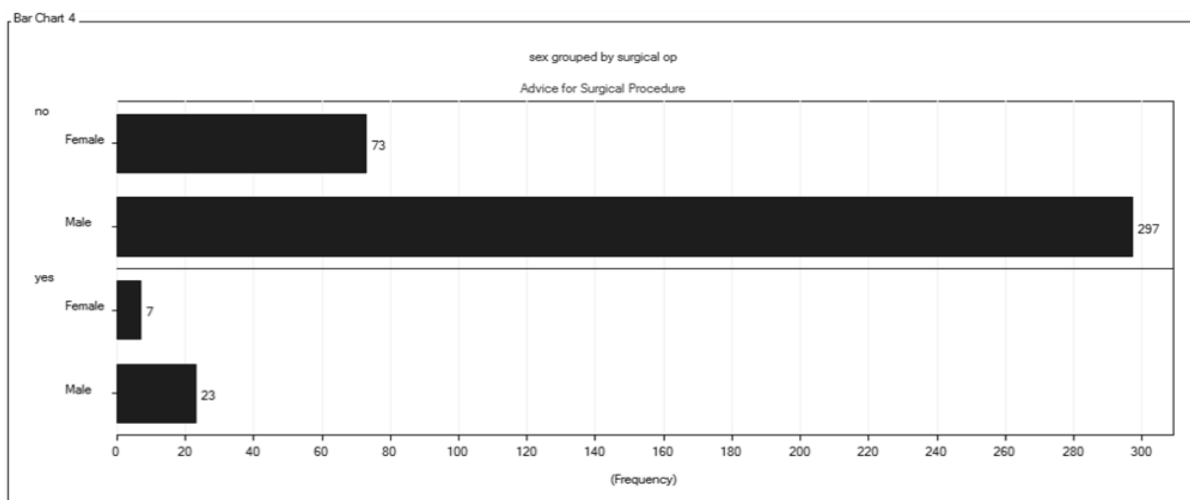

Figure 3: Preference of surgical procedure

Intercostal drainage tube (ICDT) insertion is a surgical procedure performed in pneumothorax, pleural effusion and emphysema conditions if necessary. This process was one of the factors that influence the duration of stay, till the completion of drainage. The ICD tube was not removed and need to be regularly monitored and dressed. Of 400 patients included in the study 30 patients (7.5%) were advised for the surgical procedure and ICD tube was inserted. Of these, 23 patients (5.75%) were male and 7 patients (1.75%) were female patients.

Number of drugs prescribed for patients

Total number of drugs prescribed for a patient deal with the rational use of drugs. More number of drugs prescribed for a patient lead to development of resistance, adverse drug reactions and other drug related problems. Indirectly, multiple drug use may affect the patient adherence towards treatment. Based on the severity, usage of multiple drugs is indicated for the treatment. In the present study, more number of patients (43.5%) were prescribed with 11 to 15 number of drugs in their complete treatment period. 16 to 20 drugs were prescribed in 133 patients (33.25%) followed by 6 to 10 drugs in 51 patients (12.75%), 21 to 25 drugs in 37 patients (9.25%), 26 to 30 drugs in 3 patients (0.75%) and 1 to 5 drugs in 2 patients (0.5%) and those patients who left before discharge that is LAMA and absconded cases comparatively less number of drugs were observed as the treatment is incomplete. It was observed that the more number of drugs were prescribed in patients due to co-

morbid conditions associated with the diagnosis and based on the severity of the condition. The more number of patients admitted in this hospital deal with high intensity of disease (severe condition).

Antibiotics

Antibiotics are one of the important classes of drugs prescribed in patients with lower respiratory tract diseases. The most common antibiotic prescribed was ceftriaxone (in 234 patients) followed by amoxicillin plus clavulanate (in 154 patients), metronidazole (in 147 patients), piperacillin plus tazobactum (in 114 patients), cotrimoxazole (in 51 patients), azithromycin (in 45 patients), ampicillin (in 29 patients), linezolid (in 26 patients), ciprofloxacin (in 21 patients), cefotaxime (in 14 patients), cefixime and amikacin (in 11 patients), doxycyclin (in 8 patients), clindamycin (in 4 patients), meropnem (in 3 paients), levofloxacin (in 2 patients) and kanamycin (in 1 patient). No antibiotic was prescribed in 22 patients (2.45 %). Of penicillins, amoxicillin plus clavulanate is the drug most commonly prescribed followed by piperacillin plus tazobactum and ampicillin; Of cephalosporins, ceftriaxone followed by cefotaxime and cefixime; Of flouroquinolones, ciprofloxacin followed by levofloxacin; Of aminoglycosides, amikacin followed by kanamycin; Of macrolides, azithromycin followed by clindamycin; and other drugs, metronidazole followed by cotrimoxazole, linezolid, doxycyclin and meropenem.

Table 3: Number of antibiotics prescribed per patients

No of Antibiotics				
No.of antibiotics	Frequency	Percent	Cumulative Frequency	Cumulative Percent
0	22	5.5	22	5.5
1	115	28.75	137	34.25
2	117	29.25	254	63.5
3	87	21.75	341	85.25
4	37	9.25	378	94.5
5	17	4.25	395	98.75
6	3	0.75	398	99.5
8	2	0.5	400	100

The number of antibiotics prescribed for a patient give the information about the rational use of antibiotics in the hospital settings. One to eight numbers of antibiotics were prescribed in these 400 patients included in the study. Of those in large numbers of patients 1 to 2 antibiotic drugs were prescribed (in 115 and 117 patients respectively). Three antibiotics were prescribed in 87 patients, four antibiotics in 37 patients, five antibiotics in 17 patients, six antibiotics in 3 patients and eight antibiotics in 2 patients. The more number of antibiotics were prescribed in patients with severe condition and in patients who were suspected to develop resistance to mono therapy. The frequency of distribution of antibiotics among patients suffering from LRTI was shown in Table 3.

Bronchodilators
Bronchodilators are the important class of drugs used in respiratory diseases, as these drugs are used for symptomatic relief. In 64 patients (7.03%) no bronchodilators were prescribed. In a majority of patients (33.81%) salbutamol is the bronchodilator drug prescribed, followed by ipratropium bromide (29.86%), theophylline plus etophylline (21.51%) and formoterol (7.79%). Mostly bronchodilators and corticosteroids were advised in combination to get quick relief from symptoms.

Table 4: Distribution of bronchodilators

Bronchodilators	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No Bronchodilators	64	7.03	64	7.03
Ipratropium bromide	272	29.86	336	36.88
Salbutamol	308	33.81	644	70.69
Theophylline and Etophylline	196	21.51	840	92.21
Formoterol	71	7.79	911	100

Table 5: Distribution of corticosteroids

Corticosteroids	Frequency	Percent	Cumulative Frequency	Cumulative Percent
No corticosteroids	203	44.52	203	44.52
Dexamethasone	113	24.78	316	69.3
Budesonide	97	21.27	413	90.57
Prednisolone	24	5.26	437	95.83
Hydrocortisone	19	4.17	456	100

Corticosteroids are the drugs prescribed in these patients for inflammatory condition. In 203 patients (44.52%) no corticosteroids were prescribed. Dexamethasone was the common corticosteroid prescribed (24.78%), followed by budesonide (21.27%), prednisolone (5.26%) and hydrocortisone (4.17%).

Vitamins and minerals

Vitamins and minerals were the other most commonly prescribed drugs in the patients to provide the nutritional support. In alarge number of patients nutritional support was needed, multivitamin was prescribed in a number of patients (46.83%). Other vitamin and mineral supplements include iron and folic acid (12.83%), calcium (11.17%), vitamin A and D (9.5%), B complex (7.33%), riboflavin (2%), vitamin K (1%) and iron (0.33%). In 9% of patients these vitamins and minerals were not prescribed.
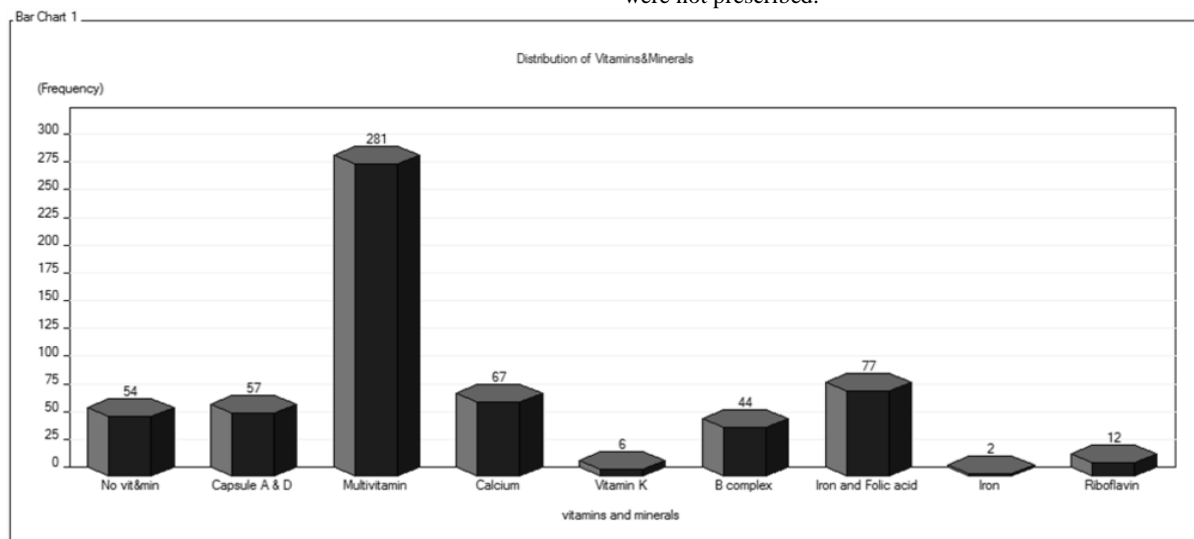

Figure 4: Distribution of vitamins and minerals

Route of administration

Route of administration is the important factor, as bioavailability of the drug depends on it. In the majority of patients, antibiotics were administered intravenously (71.4%) than orally (23.2%). In severe cases more bioavailability of drug is needed so IV route was advised. In case of bronchodilators, nebulisation was used in large number of patients (61%), followed by intravenous admission (16.9%), oral administration (7.86%) and by inhalation (7.21%). As nebulisation shows fast action, quick relief from symptoms was observed. In case of corticosteroids, intravenous admission was common (31.1%), followed by nebulisation (19.6%) and oral administration (4.64%). Vitamins and minerals were administered commonly by oral route (89.9%) than by intravenous admission.

Syrups in LRTI

Different syrups prescribed in the patients for relieving of a cough, excess mucous secretion, indigestion, constipation and potassium deficiency. Linctus codeine was prescribed in 13.9% of total subjects involved, as cough was one of the chief complaints observed, digene in 10%, ambroxol in 4.39%, potchlor in 2.2% and cremaffin plus in 1.95%, these were advised in the treatment of side effects such as indigestion, excessive mucous secretion, potassium deficiency and constipation respectively.
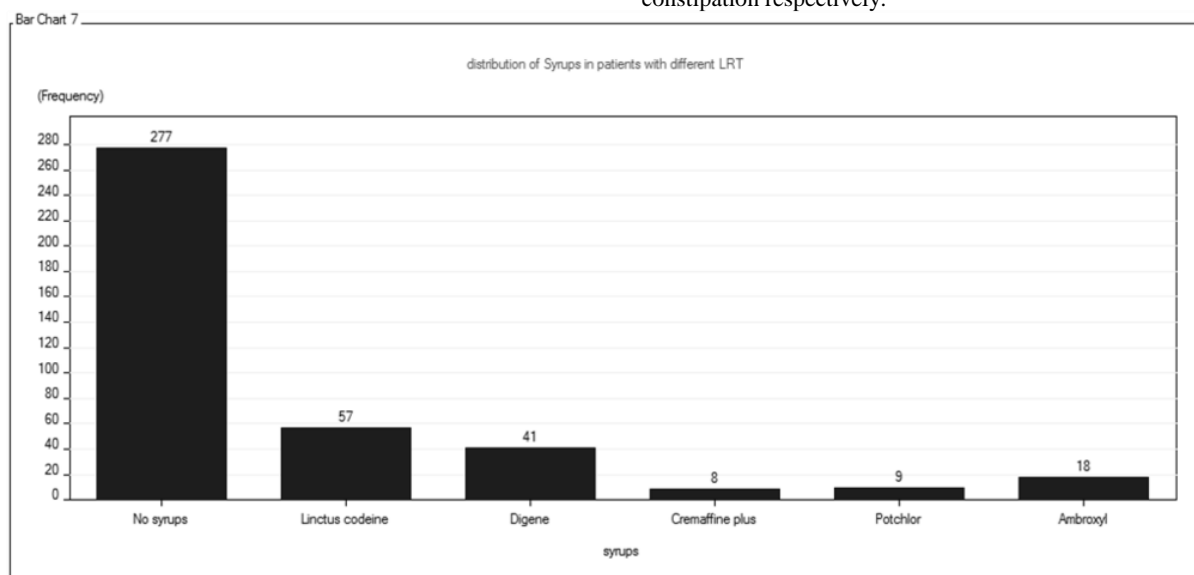

Figure 5: Distribution of syrups in different LRTIS

Other classes of drugs

Some other classes of drugs were also used in these patients, such as anti-fungal, antiemetics, NSAIDs and analgesics, benzodiazepines, proton pump inhibitors, H2 receptor blockers, anti-histamines and some other drugs. Of anti-fungal, fluconazole was prescribed in 11.1% of total population included in the study and candid (clotrimazole) mouth paint in 1.23%. In patients with IDS fungal infections were frequently observed. Of antiemetics: ondansetron (12%)and domperidon (1.96%) were prescribed. Of NSAIDs and analgesics, paracetamol was the common drug prescribed (58.8%), followed by diclofenac (10%) and tramadol (6.68%). Of benzodiazepines, diazepam (4.25%) and alprazolam (0.5%) were prescribed. Of proton pump inhibitors pantoprazole (54%) and rabiprazole (46%) were prescribed. H2 receptor blocker that is ranitidine (88.5%) was prescribed. Of the anti-histamines, the most common drug prescribed was cetrizine (74.4%)than pheneramine maleate (1.49%). Other common drugs prescribed were ethamsulate (14.2%), botruphase (7.53%), pyridoxine (0.23%), buscopan (1.14%), PAH (2.74%), furosemide (14.4%) and metformin (0.91%). IV fluids were advised in 75.5% of total population included in the study and nasal O2 was advised in 68.3% of population.

Categories of drugs in tuberculosis

Patients diagnosed with tuberculosis were categorized as a new case, relapse, defaulter and treatment failure. 116 patients (29%) were found to be newly affected and categorized under new cases, 29 cases (7.25%) were found to be relapse cases, that is deterioration of tuberculosis after the period of improvement. 84 cases (21%) were defaulter cases, where the condition gets worse as the patient fails to complete the treatment and 15 cases (3.75%) were treatment failure cases, here the patient was found to be sputum positive at 5 months or later after the initiation of anti-tubercular therapy. Of 207 cases diagnosed as pulmonary tuberculosis, 76 patients (36.68 %), were advised for category 1 anti-tubercular therapy (ATT), thee 4 drugs (isoniazid, rifampin, pyrazinamide, ethambutol) were included. 105 patients (50.75%) were advised for category 2 antitubercular therapy, here 5 drugs (streptomycin was added to category 1 drugs) were included. 26 patients (12.56%) left without any treatment.

Prescription completion and discharge of patients

331 (82.8%) prescriptions were completed, including the discharge medication, and 69 (17.3%) prescriptions were incomplete as the patients left the hospital without completion of their treatment. Of the 69 patients 17 (4.25%) were absconded that is they left the hospital without intimation and 52 patients (13%) were left against medical advice [LAMA]

Table 6: Drug distribution in different lower respiratory tract infections

	Cat-1	Cat-2	AB	BD	CS	Vit & Min	AF	AE	AH	NSAIDs & Analgesics	BZ	PPIs	H2RB	IVF	Nasal O2	Others
PTB (207)	77 (37.2)	101 (48.7)	189 (91.2)	176 (85)	102 (49.2)	174 (84)	33 (15.9)	35 (16.9)	145 (70)	153 (73.9)	13 (6.27)	93 (44.9)	175 (84.5)	149 (72)	136 (65.6)	71 (34.2)
COPD (31)	0 (0)	0 (0)	31 (100)	27 (87)	20 (64.5)	26 (83.8)	0 (0)	4 (12.9)	21 (67.7)	21 (67.7)	0 (0)	11 (35.4)	28 (90.3)	24 (77.4)	20 (64.5)	17 (54.8)
PTB with COPD (17)	12 (70.5)	4 (23.5)	15 (88.2)	16 (94.1)	11 (64.7)	16 (94.1)	4 (23.5)	1 (5.8)	15 (88.2)	14 (82.3)	1 (5.8)	9 (52.9)	17 (100)	10 (58.8)	11 (64.7)	8 (47)
Pleural effusion (15)	0 (0)	2 (13.3)	15 (100)	13 (86.6)	2 (13.3)	15 (100)	0 (0)	0 (0)	10 (66.6)	15 (100)	0 (0)	6 (40)	15 (100)	15 (100)	13 (86.6)	6 (40)
Lymph-adenopathy (10)	0 (0)	0 (0)	10 (100)	7 (70)	3 (30)	10 (100)	0 (0)	0 (0)	4 (40)	4 (40)	0 (0)	7 (70)	7 (70)	3 (30)	3 (30)	4 (40)
Haemoptysis (13)	0 (0)	3 (23)	13 (100)	3 (23)	0 (0)	11 (84.6)	0 (0)	0 (0)	13 (100)	0 (0)	3 (23)	2 (15.4)	13 (100)	11 (84.6)	10 (77)	11 (84.6)
Consolidation (26)	4 (15.3)	2 (7.7)	24 (92.1)	19 (73)	14 (53.7)	21 (80.6)	7 (26.9)	3 (11.5)	25 (96)	20 (76.8)	0 (0)	7 (26.9)	25 (96)	15 (57.6)	14 (53.7)	10 (38.4)
Pneumonia (15)	0 (0)	0 (0)	15 (100)	13 (86.6)	7 (46.6)	15 (100)	0 (0)	2 (13.3)	13 (86.6)	13 (86.6)	0 (0)	11 (73.3)	15 (100)	13 (86.6)	11 (73.3)	4 (26.6)
Pneumothorax (15)	0 (0)	0 (0)	15 (100)	15 (100)	7 (46.6)	13 (86.6)	2 (13.3)	2 (13.3)	15 (100)	15 (100)	0 (0)	6 (40)	15 (100)	15 (100)	15 (100)	0 (0)
Kyphoscoliosis (6)	0 (0)	0 (0)	6 (100)	6 (100)	6 (100)	6 (100)	0 (0)	0 (0)	6 (100)	3 (50)	0 (0)	6 (100)	6 (100)	6 (100)	3 (50)	3 (50)
Fibrocavity (11)	0 (0)	0 (0)	11 (100)	9 (81.8)	6 (54.5)	11 (100)	0 (0)	1 (9.09)	9 (81.8)	8 (72.7)	2 (18.1)	4 (36.3)	9 (81.8)	9 (81.8)	8 (72.7)	2 (18.1)
Bronchiectasis (15)	0 (0)	0 (0)	15 (100)	13 (86.6)	3 (20)	12 (80)	0 (0)	0 (0)	11 (73.3)	11 (73.3)	0 (0)	7 (46.6)	11 (73.3)	13 (86.6)	13 (86.6)	6 (40)
Lung abscess	0 (0)	0 (0)	4	4	4	4	0 (0)	0 (0)	4	4 (100)	0 (0)	0 (0)	4	4	4	0 (0)

(4)			(100)	(100)	(100)	(100)		(100)			(100)	(100)	(100)		
Bronchial asthma (9)	0 (0)	0 (0)	9 (100)	9 (100)	9 (100)	3 (33.3)	0 (0)	0 (0)	9 (100)	6 (66.6)	0 (0)	9 (100)	9 (100)	9 (100)	6 (66.6)	0 (0)
Emphysema (6)	3 (50)	0 (0)	6 (100)	6 (100)	3 (50)	6 (100)	0 (0)	3 (50)	3 (50)	3 (50)	0 (0)	6 (100)	6 (100)	6 (100)	6 (100)	0 (0)
TOTAL (400)	96 (24)	112 (28)	378 (94.5)	336 (84)	197 (49.2)	343 (85.7)	46 (11.5)	51 (12.7)	303 (75.7)	290 (72.5)	19 (4.7)	184 (46)	355 (88.7)	302 (75.5)	273 (68.2)	142 (35.5)

CONCLUSION

In conclusion, this study has analyzed the prevalence and prescribing trends in lower respiratory tract infections in Government Fever Hospital. Prevalence of LRTIs was observed more in males than in females. Shortness of breath, cough with expectoration, fever and chest pain were commonly reported chief complaints. Pulmonary tuberculosis have been the most frequently observed disease, followed by chronic obstructive pulmonary disease (COPD) and Consolidation. Antibiotics, bronchodilators, corticosteroids, vitamins and minerals and analgesics were most commonly prescribed drugs, of those ceftriaxone was the common antibiotic followed by amoxicillin + clavulanate, metronidazole, piperacillin+tazobactum and Salbutamol was commonly prescribed bronchodilator followed by ipratropium. Of corticosteroids dexamethasone was mostly prescribed drug. In cases of tuberculosis, category II was prescribed in more number of patients as a defaulter, relapse and treatment failure cases were more than new cases. Other classes of drugs such as vitamins and minerals, anti-fungal, antiemetics, benzodiazepines, proton pump inhibitors, h2 receptor blockers and antihistamines were prescribed in patients with need. In some patients more number of antibiotics was prescribed, this may lead to the development of resistance. But, the severity of the patient condition influences the treatment plan. Of 400 patients included in the study, 331 (82.8%) patients were observed with complete prescription and 69 (17.2%) patients with incomplete prescription as 52 patients of them were left against medical advice and 17 patients were absconded. Patients who completed the treatment were observed to have a more quality of life compared to those who left against medical advice and continuation of smoking and alcohol consumption increases the frequency and severity of lower respiratory tract infections.

References

1. Aronson JK. Medication errors: what they are, how they happen, and how to avoid them. QJM. 2009; 102(8):513-21.
2. Van den Bemt PMLA, Egberts ACG. Drug related problems, definitions and classification. Eur J Hosp Pharm Pract. 2007;13:62–64.
3. Dhamija P, Bansal D, Srinivasan A, Bhalla A, Hota D, Chakrabarti A. Patterns of prescription drug use and incidence of drug-drug interaction in patients reporting to medical emergency. Fundam Clin Pharmacol 2013; 27: 231-7.
4. Krahenbuhl Melcher A, Schlienger R, Lampert M, Haschke M, Drewe J, Krähenbühl S. Drug related problems in hospitals: A review of the recent literature. Drug Saf 2007; 30: 379-407.
5. Croskerry P, Sinclair D. Emergency medicine: A practice prone to error? CJEM 2001;3:271-6.
6. Mohan H. The Respiratory system. Text book of Pathology, 4th ed. New Delhi: Jaypee Brothers Medical Publishers (Pvt) ltd; 2000: 438-9.
7. Prescribing of antibiotic for self limiting respiratory tract infections in adults and children in primary care; Nice Clinical Guidelines in UK. 2008; 8: 69.
8. Khan IA, Shobha Rani RH, Subramanyam G. Efficacy and safety of azithromycin with various cephalosporins used in treatment of lower respiratory tract infection. Indian J Pharm Pract. 2009; 1(2):53-61.
9. Davey PG, et al. The influence of case mix, site selection, and methods biases on costs of hospitalization for acute exacerbations of chronic obstructive airways disease and lower respiratory tract infections. ISPOR. 1999;2(5): 333-41.
10. Ahmad A, Khan MU, Patel I, Maharaj S, Pandey S, Dhingra S. Knowledge, attitude and practice of B.Sc. Pharmacy students about antibiotics in Trinidad and Tobago. J Res Pharm Pract. 2015; 4(1):37.
11. Sartelli M, Labricciosa FM, Barbadoro P, Pagani L, Ansaloni L, Brink AJ, Carlet J, Khanna A, Chichom-Mefire A, Coccolini F, Di Saverio S. The Global Alliance for Infections in Surgery: defining a model for antimicrobial stewardship—results from an international cross-sectional survey. World J Emerg Surg. 2017;1;12(1):34.
12. Sartelli M, Weber DG, Ruppé E, et al. Antimicrobials: a global alliance for optimizing their rational use in intra-abdominal infections (AGORA). World J Emerg Surg. 2016; 11(1), 33.
13. Ahmad A, Khan MU, Malik S, Mohanta GP, Parimalakrishnan S, Patel I, Dhingra S. Prescription patterns and appropriateness of antibiotics in the management of cough/cold and diarrhea in a tertiary care teaching hospital. J Pharm Bioall Sci. 2016; 8(4):335.
14. Khan MU, Hassali MA, Ahmad A, Elkalmi RM, Zaidi ST, Dhingra S. Perceptions and Practices of Community Pharmacists towards Antimicrobial Stewardship. PloS one 2016; 11(2):e0149623.
15. Dhingra S, Kamra S, Dhingra M, Nagavi BG. Trial implementation and assessing the impact of standard therapeutic guidelines among general practitioners of Mysore City. Indian J Hosp Pharm. 2006; 4(1):141-147.
16. Dhingra S, Parle M, Nagavi BG. Rational drug use and pharmacist. Indian J Hosp Pharm. 2005; 1(1):10-12.