



A Prospective Study on Prescribing Pattern of Antibiotics in Treating Respiratory Tract Infections at Discharge and Follow Up

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KEYWORDS

Antibiotics,
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ABSTRACT:

Introduction: Respiratory tract infections are the infectious diseases that causes the upper respiratory tract infections and lower respiratory tract infections. Upper respiratory tract infections[URTIs] are common cold, laryngitis, pharyngitis, acute rhinitis, acute otitis, sinusitis and lower respiratory infections[LRTIs] are pneumonia, asthma, chronic obstructive pulmonary disease[COPD], bronchitis. Pneumonia is the most common infectious disease which affects the lower respiratory tract than the upper respiratory tract infections. Medication like antibiotics are most frequently used to treat infectious conditions. Penicillin and beta-lactam antibiotics are more used to treat respiratory tract infections.

Objectives: To study the prescribing pattern of antibiotics in treating respiratory tract infections. To analyse the efficacy of antibiotics in treating respiratory tract infections with other diseases. To assess the rationality of antibiotics prescribed.

Methods: It is a Prospective Observational Study. The study will be conducted for a period of 6 months. Study will be conducted at Pulmonology department in LALITHA SUPER SPECIALITY HOSPITAL at Guntur, sample size of 150 patients. Data analysis will be done by using chi square statistical methods. Patients with age group 18-68 years. In-patients and out-patients are included. Both male and female patients are included. Patient with upper and lower respiratory tract diseases are included. Patient with age <18 years and above >68 years, Pregnant and lactating women are excluded.

Results: The age distribution of patients show that maximum number of were found between 48-57yrs and minimum patients were found between 18-27yrs when it comes to the gender distribution of patients show that 94 were males and 56 were females, which means mostly men are affected when compared to females in the present study majority of study population that is diagnosed with LRTIS when compared with URTIS.

Out of 150 cases 38.6% of patients were suffered with Pneumonia and 8% were suffered with the sinusitis and most prescribed antibiotics were amoxicillin-potassium clavulanate[60%] and less prescribed antibiotics were Azithromycin [3.3%].

Conclusions: The main aim of the study was to analyse the prescribing pattern of antibiotics in



respiratory tract infections and this study involved both in-patients and out patients. In this study we collected 150 samples of respiratory tract infections and concluded that lower respiratory tract infections are more when compared to upper respiratory tract infections. The most frequently used antibiotics are penicillin and beta-lactam antibiotics, cephalosporin, quinolones, macrolide antibiotics are used.

1. Introduction

Respiratory tract infections are the infectious disease that causes the infection on both upper [URTI'S] and lower tract respiratory infections [LRTI'S].

Upper respiratory tract [URTI'S] is made up with nose or nostrils, nasal cavity, mouth, throat [pharynx] and voice box [larynx]. upper respiratory tract are contagious they can spread from one person to another person by touching or through droplets

Upper respiratory tracts infections mostly effected the upper part of the respiratory system like sinus [sinusitis] and throat [pharyngitis]. the symptoms may appear and bacteria or virus entered into the URTI the common symptoms are

- Runny nose
- Sore throat
- cough
- fever
- horse voice
- fatigue

URTI'S re common cold, epiglottitis, laryngitis, pharyngitis, sinusitis.

Lower respiratory tract is made up of lungs, bronchi, and bronchioles, alveoli, LRTI'S are the bronchitis, bronchiolitis, pneumonia. Acute exacerbation of chronic obstructive pulmonary disease. acute exacerbation bronchitis and TB.

The common symptoms include

- high fever
- chest pain
- cough with phlegm
- fast breathing
- breathlessness or difficulty in breathing
- constant wheezing

In LRTI'S pneumonia is the most frequently occur infections so many people are most frequently suffered with pneumonia

Both upper and lower respiratory tract infections can be treated with antibiotics like penicillin, and beta lactum inhibitors are commonly used. these antibiotics shows the more efficacy on treating respiratory tract infections and other antibiotics like cephalosporins, quinolones, and macrolides

These also shows great results in treating RTI'S. these prescribing pattern of antibiotics are the indicators for the quality and standard clinical practise the study prescribing pattern of antibiotics can monitor the rational use of the antibiotics and can avoid the irrational use of antibiotics.

Rational use of antibiotics maintain the correct dose, frequency, drug and cost. these can improve the patient quality of life and decrease the resistance to the antibiotics.

TREATMENT :

S. N O	BRAND NAME	GENRERIC NAME	DO SE	DURA TION
1	AUGUMENTIN	AMOXICILLIN+ POTASSIUM CLAVULNATE	1.2 g	For 1 week
2	PIPTAZ	PIPERACILLIN	4.5 g	7-14 days
3	AMOX	TAZOBACTAM+ AMOXICILLIN	500 - 100 mg	10-14 days
4	MONO CEF	CEFTRIAXONE	1-2g	3-5 days
5	CEFIPAR	CEFUROXIME	500 mg	5-7 days



6	BIOTAX	CEFOTAXIME	125 mg	3-5 days
7	SECEF	CEFIXIME	200 mg	7 days
8.	AZITHRAL	AZITHROMYCIN	500 mg	7-14 days
9.	LEVOFLOX	LEVOFLOXACIN	750 mg	5days

2. Objectives

- To study the prescribing pattern of antibiotics in treating respiratory tract infections.
- To analyse the efficacy of antibiotics in treating respiratory tract infections with other diseases.
- To assess the rationality of antibiotics prescribed.

3. Methods

STUDY TYPE:

It is a Prospective Observational Study.

STUDY PERIOD:

The study will be conducted for a period of 6 months.

STUDY SITE:

Study will be conducted at Pulmonology department in LALITHA SUPER SPECIALITY HOSPITAL at Guntur.

SAMPLE SIZE:

150 patients

STATISTICAL ANALYSIS:

Data analysis will be done by using different statistical methods.

STUDY DESIGN:

SELECTION OF PATIENTS WITH RESPIRATORY TRACT INFECTIONS BASED ON INCLUSION AND EXCLUSION CRITERIA

COLLECTION OF INPATIENT CASE RECORDS



REVIEW THE SPECIFIC ISSUES LIKE TYPE OF ANTIBIOTICS PRESCRIBED TO THE PATIENT FOR SPECIFIC DISEASES



ANALYZING THE EFFCACY OF ANTIBIOTICS



STATISTICAL ANALYSIS



CONCLUSION

STUDY CRITERIA:

INCLUSION CRITERIA:

1. Patients with age group 18-68 years.
2. In- patients and out-patients are included.
3. Both male and female patients are included .
- 4.Patient with upper and lower respiratory tract diseases are included.

EXCLUSION CRITERIA:

1. Patient with age <18 years and above >68 years.
- 2.Pregnant and lactating women are not excluded.

4.Results

The results was collected during 6 months of duration at tertiary care hospital in pulmonology hospital a total 150 patients enrolled in the study.

TABLE NO: 1 AGE FACTOR

S.N O	AGE IN YEARS	NO.OF PATIENTS	PERCENTAGE[%]
1.	18-27	13	8.6%
2.	28-37	28	18.6%



3.	38-47	39	26.2%
4.	48-57	48	32%
5.	58-67	22	14.6%

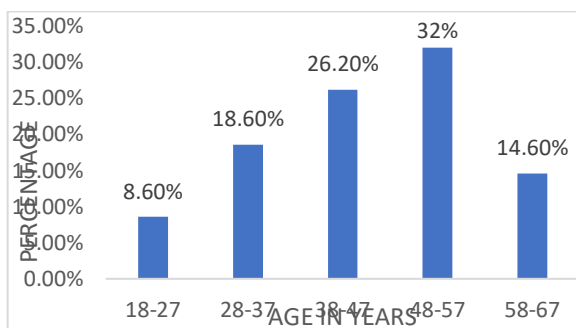


FIG NO :1 AGE DISTRIBUTION IN PATIENTS WITH RTI

In 150 patients we took the age between 18-67 years old. Among 150 patients 8.6% of patients are in the age between 18-27, 18.6% of patients are in the age between 28-37, 26.2% of patients are in the age between 38-47, 32% of patients are in the age between 48-57, 14.6% of patients are in the age between 58-67.

TABLE NO:2 GENDER DISTRIBUTION

S.N O	GENDE R	NO.OF PATIENT S	PERCENTAGE[%]
1.	MALE	94	62.9%
2.	FEMAL E	56	37.3%

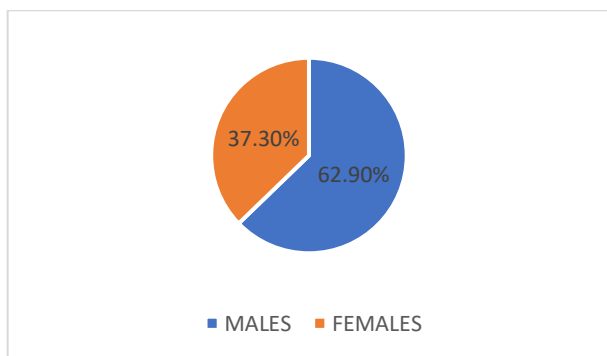


FIG NO :2 GENDER DISTRIBUTION

Out of 150 patients the male patients were 94 i.e 62.9% and remaining 56 patients were females i.e 37.3%.

TABLE NO: 3 SOCIAL HISTORY

S.N O	SOCIAL HISTORY	NO.OF PATIENTS	PERCENTAGE[%]
1.	ALCOHOL	43	28.6%
2.	SMOKER	56	37.3%
3.	ALCOHOL+SMOKER	23	15.3%

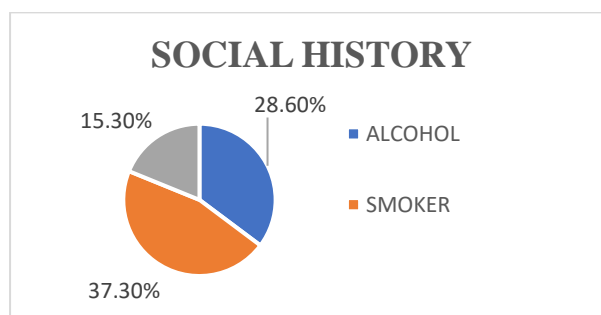


FIG NO :3 SOCIAL HISTORY OF PATIENTS WITH RTI

Out of 150 patients 28.6% patients were alcoholic, 37.3% patients were smoker, 15.3% were alcoholic and smoker.

TABLE NO: 4 PATIENT CATEGORIZATION

S.N O	CATEGO RY	NO OF PATIENTS	PERCENTAGE [%]
1.	IN PATIENT	121	80.6%
2.	OUT PATIENT	29	19.3%

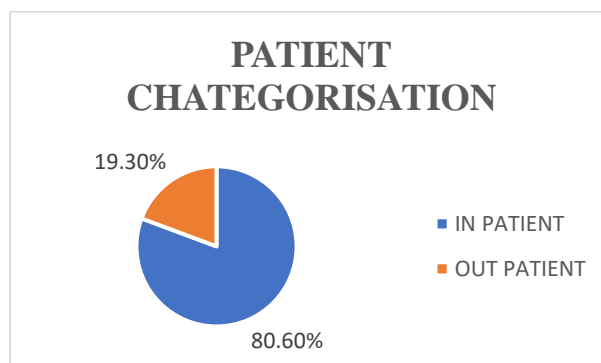


FIG NO :4 PATIENT CATEGORIZATION IN RTI



Out of 150 patients 80.6% patients were the inpatients and the remaining 19.3% were the out patients.

TABLE NO: 5 DISEASE CONDITION

S.N O	DISEASE	NO OF PATIENTS	PERCENTAGE [%]
1.	PNEUMONIA	58	38.6%
2.	BRONCHITIS	12	8%
3.	ASTHMA	18	12.1%
4.	COPD	24	16%
5.	TB	26	17.3%
6.	SINUSITIS	12	8%

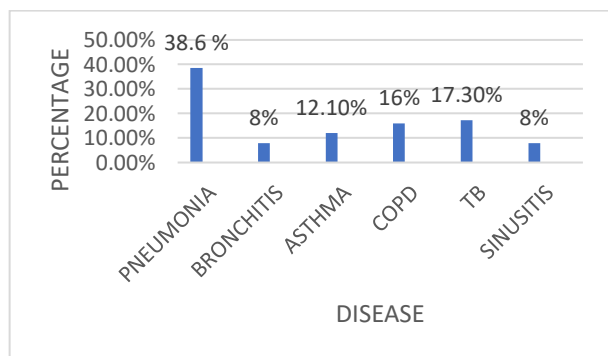


FIG NO :5 DISEASE CONDITION

Out of 150 patients according to the disease condition 38.6% of patients were suffered with pneumonia ,8% patients suffered with the bronchitis, 12.1% patients suffered with the asthma 16% patients suffered with the COPD , 17.3% TB, and 8% were suffered with the sinusitis.

TABLE NO : 6 DRUG CAREGORIZATION:

S.N O	TYPES OF CATEGORY	NO OF PATIENTS	PERCENTAGE [%]
1.	PENICILLINS AND BETA-LACTAM	110	73.3%
2.	CEPHALOSPORIN	19	12.6%

3.	QUINOLONE	16	10.6%
4.	MACROLIDE	5	3.3%

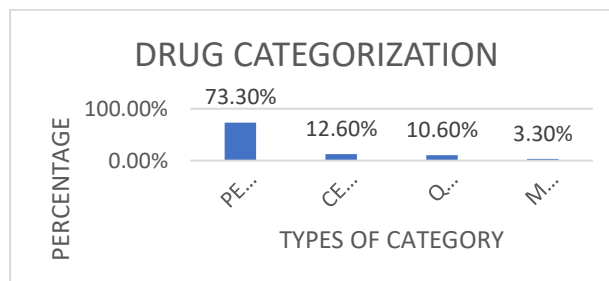


FIG NO :6 DRUGS CATEGORIZATION

According to the drug category penicillin + beta lactum antibiotics were most commonly used i.e 73.3%, cephalosporins were used as 12.6%, quinolone antibiotics were used as 10.6% and macrolides were 3.3%.

TABLE NO: 7 PRESCRIBING PATTERN OF ANTIBIOTICS:

S. N O	TYPES OF ANTIBIOTICS	NO.OF PATIENTS	PERCENTAGE
1	AMOXICILLIN+POTASSIUM CLAVULANATE	90	60 %
2	PIPERACILLIN+TAZOBACTAM	20	13.3%
3	CEFEXIME	19	12.6%
5	LEVOFLOXACIN	16	10.6%
6	AZITHROMYCIN	5	3.3%

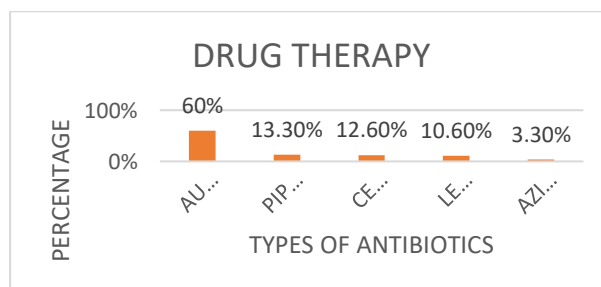


FIG NO :7 DRUG THERAPY IN PATIENTS WITH RTI



Out of 150 patients shows amoxicillin+ potassium clavulanate most used antibiotics than other antibiotics i.e 60% and other antibiotics like piperacillin+ tazobactam 13.3%, cephalosporins 12.6% and levofloxacin 10.6%, and azithromycin are 3.3% were used.

Statistical test:

A quantitative analysis was performed by using chi square test.

Null hypothesis: There is no association between drugs and disease.

Alternative hypothesis

There is a significant association between drugs and

Out Patient	11	10	5	2	1	29
Total	90	16	19	20	5	150

$$\chi^2 = 0.56 + 3.69 + 0.11 + 0.21 + 0.00 + 2.35 + 15.45 + 0.48 + 0.89 + 0.00$$

$$\chi^2 = 23.74$$

Tabular significance level $[\alpha] = 0.05$

$[\chi^2]$ tabulated value = 9.488

$[\chi^2]$ calculated value = 23.74

χ^2 Calculated value [23.74] > χ^2 Tabulated value [9.488] with [5-1] degree of freedom at 0.05 level of significance. Hence H_0 [null] was rejected & H_1 [alternative] hypothesis was accepted.

Therefore there is significant association between antibiotics in respiratory tract infections.

4. Discussion

The results were obtained after 6 months study duration in the pulmonology department of tertiary care hospital a total of 150 patients enrolled in the study, study of the prescribing pattern of antibiotics in respiratory tract infection is a prospective observational study where data was collected in the Lalitha Super Speciality Hospital with a random representative sampling strategy explaining the qualitative and quantitative analysis, we collected 150 cases of those who are taking prescribing pattern of antibiotics in treating respiratory tract infections at discharges and follow up, out of 150 patients the age between 48-57 are mostly affected to the respiratory infections i.e [48] 32% and other age groups are like 38-47 are [39] 26.2%, 28-37 are [28] 18.6%, 58-67 are [22] 14.6%, and 18-27 [13] are 8.6%. Males are more prone to respiratory infections i.e [94] 62.9% and females are less prone to respiratory infections i.e [56] 37.3%. Smokers had more risk to cause respiratory problems i.e [56] 37.3% and pneumonia are mostly used antibiotics in this study. The most used antibiotics are Penicillin and beta-lactamase inhibitors. It prevents the bacterial growth by inhibiting cell wall synthesis of

TABLE NO:8

O	E	O-E	[O-E] ²	[O-E] ² /E
79	72.6	6.4	40.96	0.56
6	12.9	-6.9	47.61	3.69
14	15.32	1.32	1.74	0.11
18	16.31	1.87	3.49	0.21
4	4.03	-0.03	0	0
11	17.4	-6.4	40.96	2.35
10	3.09	6.91	47.74	15.45
5	3.67	1.33	1.76	0.48
2	3.86	1.86	3.45	0.89
1	0.96	0.04	0	0

$$\chi^2 = \sum \frac{(O-E)^2}{E}$$

TABLE NO:9

Drug Categorisation	Amoxicillin+ Potassium Clavulanate	Levofloxacin	Cefixime	Piperacillin+ Tazobactam	Azithromycin	Total
Inpatient	79	6	14	18	4	121



bacteria . The amoxicillin and potassium clavulanate antibiotics were [90] 60% used and piperacillin and tazobactam were [20] 13.2% used and other antibiotics like cephalosporin [19] 12.6%, levofloxacin [16] 10.6% and azithromycin [5] 3.3% were used, A quantitative analysis was done by using chi square test the results χ^2 value is 23.74 with degrees of freedom [5-1] at a level of significance 0.05 and the p value is > 0.05 .

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