Research Article

A Prospective Observational Study on Anti-Infective Agents in Adults in A Hospital

Gada Yerukala Srawan Kumar*, Dr. Reddy Phani kumar[1], Desireddy Rama Brahma Reddy[2], Yathirajam Dedeepya[2], Naligala Divya[2]
[1] Physician St. Joseph General Hospital, Guntur, AP, India.
[2] Nalanda Institute of Pharmaceutical Sciences, Kantepudi, Sattenapalli, Guntur, AP, India.
*Corresponding author's E-mail: gysrawan@gmail.com

ABSTRACT

The main aim of the pharmacist is to provide the right drug in the right quality at the right time to patient. The monitoring studies of such prescription pattern can nourish the relevant use and exploit or misuse of the drug which is monitored. The main goal of the present study is to ease the rational use of drugs and make awareness of the irrational use of the drug which is more prevalent to the drug resistance, economic burden to the patient and failure of the treatment. The present prospective observational study was going on the usage of anti-infective agents in the adults based on the prescription of the physician to the patients. Prescriptions were obtained from various clinical departments was done over the period of 6 months from October 2020 to March 2021 to assess the appropriate use of anti-infective agents in adults. Total 1610 prescriptions data of anti-infective agents were analysed of average range of medication includes antibacterial, antiviral, antifungal, anthelmintic, antiparasitic, antimicrobials. A total of 1610 prescriptions from out patient and in patient department of the hospital were analysed in this study and out of those patients, male patients were 714 (44.34%) and female patients were 896 (55.65%). The most common age group which was prescribed more anti-infective agents was 51-60 years. Among them the antibacterial were about 65.03%, antiviral 1.59%, antifungal 7.04%, anthelmintic 7.09%, antiparasitic 0.89%, antimicrobial 0.51%, antimalarial 0.93%, antitubercular 0.51%, Antibacterial+Antiprotozoal 16.45%. Now a days usage of anti-infective agents was high to improve the rational use of drugs and to avoid the irrational usage of antibiotics in increasing the side effects and resistance towards the drug and total cost of treatment as well.

Keywords: Relevant, exploit, Prevalent, irrational use, awareness, Anti-infective agents.

INTRODUCTION

Drugs plays an important role to improve human health.[1] Now a day's maximum we determined the infectious sicknesses that causes because of bacteria, virus, fungi and different parasites. These diseases were treated by anti-infective agents for specific diseases caused in patient. These infections are triggered because of incorrect sanitization, being contact with the triggering elements. Anti-infective agents which can be prescribed to forestall the increase of infectious agents which can be present inside the body. Infectious diseases means the contamination will develop in the body daily through micro-organisms.

Antivirals are the drugs which can be used to deal with the viral sicknesses besides HIV as it do now no longer have any precise treatment.[2] The acute URTIs are in the mainly caused by the viruses in most cases and resolve spontaneously, hence antimicrobial agents don't seem to be necessary till its sophisticated and severe. The various studies found that antimicrobials were prescribed nearly 90% of pharyngitis.[3]

Most of the infectious diseases are due to fungi and the primary effected component in the fungal contamination is spores and skin. Skin is the most important element in our body and it is the most sensitive and cover everywhere in the body, subsequently it being contact with outside elements they will result in spores and skin diseases.[4]

Antiparasitic drugs are used to deal with the precise micro-organisms that cause contamination because of the consumption of unhealthy food.[5] WHO interpret Drug use evaluation (DUE) is an advancing, structured, criteria based program of medicine evaluations that will assist to sew up the precise medicinal drug use.[6] This is very important in developing countries like India, where infectives and infectious diseases are more common.[7] The fundamental intension of the study is to equalize the drug utilisation process and to promote the rational drug use.[8]

MATERIALS AND METHODS

Study Design

It includes the patients, usage of Anti-infective agents in St. Joseph Hospital, Guntur to study the comparison of opposite genders, age and prescription pattern of anti-infective agents.

Study Design: 6 Months

Source of Data: St. Joseph Hospital, Guntur (Private Hospital)

Methods of collection of data:

By reviewing prescriptions

By reviewing case sheets

Study population: All outpatients and inpatients of various clinical departments of St. Joseph Hospital in Guntur.

Sample size: 1610 patients were analysed and studied.

Inclusion Criteria:

1. Prescriptions containing one or more Anti-infective Agents.

2. All adult age >20 years prescribed with different Anti-infective agents were included.

3. The data thus obtained was entered in the Microsoft Excel software, was expressed the percentage and Proportions.

Exclusion Criteria:

1. Pregnant and Lactating females.

2. Cancer Patients.

3. Adult patients of age <20 years, neonates, infants, children, improper details or incomplete detailed prescriptions.

RESULTS AND DISCUSSION

Out of 1610 prescriptions, the use of anti-infective agents data were depicted in **Table 1** with monotherapy is 71.86%, 2drug therapy with 23.91% and 4.23% had more than two anti-infective agents these was related to the study of Sonali Rode et al.[9] In their study out of 385 prescriptions, use of antimicrobial monotherapy with 39.47% and 2 drug therapies with 34.55% and more than two antimicrobials was 25.71%. The difference in the study was due to the duration, no of prescriptions collected by them in the randomised retrospective study.

Table 1: Based on drugs prescribed

Parameters	No of Prescriptions (n=1610)	Percentage (%)
One drug	1157	71.86
Two drugs	385	23.91
Three drugs	58	3.60
Four drugs	8	0.50
>Four drugs	2	0.13

In this study total no of 1610 prescriptions were analyzed. Among them we found about 714 males (44.34%) and 896 females (55.65%) which was depicted in **figure 1**. In this study, we analysed that the usage of anti-infective agents was more in females when compared to the males Sunil S Gidamudi et.al [10] found the same result in their study.

Some results found exactly the opposite results in Naik HG et al.[11]
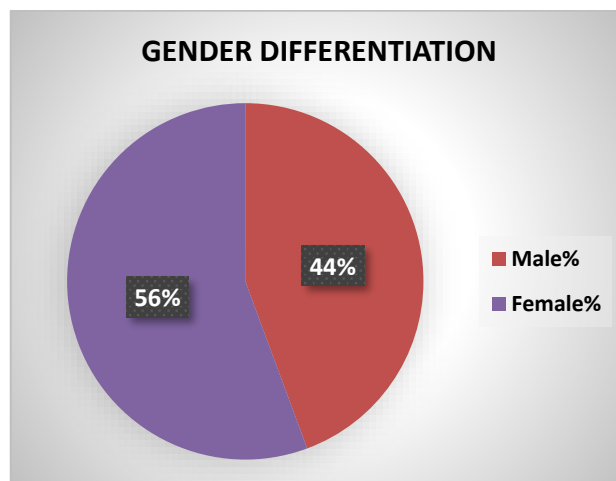

Figure 1: Gender differentiation in Prescriptions

In this study, a total of 1610 prescriptions were analyzed. A maximum number of patients belonged to the age group of 51-60 years data was depicted in the **Figure 2**. The proportion of female patients was more compared to the male patients. The percentage of females were more compared to the male. Akram Ahmed et al.,[12] conducted a study shows that the maximum number of antimicrobials agents were prescribed to the age group between 30-60 years. This may be due to the fact that the elderly are more likely to get sick and have more serious illnesses than patients in other age groups.

Table 2: Patient Demographics

| Age	Males (n=714)	Males (%)	Females (n=896)	Females (%)
20-30	104	6.46	199	12.36
31-40	127	7.89	154	9.57
41-50	147	9.13	225	13.98
51-60	181	11.24	193	11.99
61-69	155	9.62	125	7.76
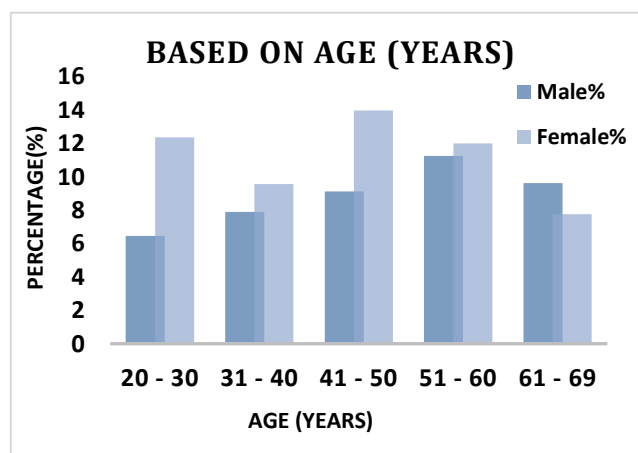
Figure 2: No of Prescriptions as per Patient Demographics

In this study we observed that maximum drugs were use for treat of infective agents was antibacterial with 65.03% depicted in **Figure 3** because of broad spectrum nature it is widely used in all type of diseases like UTI'S and URTI'S as we found the same results in Adugna Fenta et.al.[13] followed by anthelmintic with 7.09% with minute difference of Antifungal with 7.04% and the least anti-infective agents were prescribed with Antimicrobials. Using broad spectrum agents, clear availability of antimicrobials in non-managed pharmacy, sub-standard/poor drug quality, pharmacological treatment termination and over-prescription because of a terrible diagnostic set-up or fear of loss of follow-up are among common elements improving antimicrobial resistance.

Table 3: Based on the category

Category	No of Drugs (n=2145)	Percentage (%)
Antibacterial	1395	65.03
Antiviral	34	1.59
Antifungal	151	7.04
Antihelmentic	152	7.09
Antiparasitic	18	0.89
Antimicrobial	11	0.51
Antimalarial	20	0.93
Antitubercular	11	0.51
Antibacterial+ Antiprotozoal	353	16.45
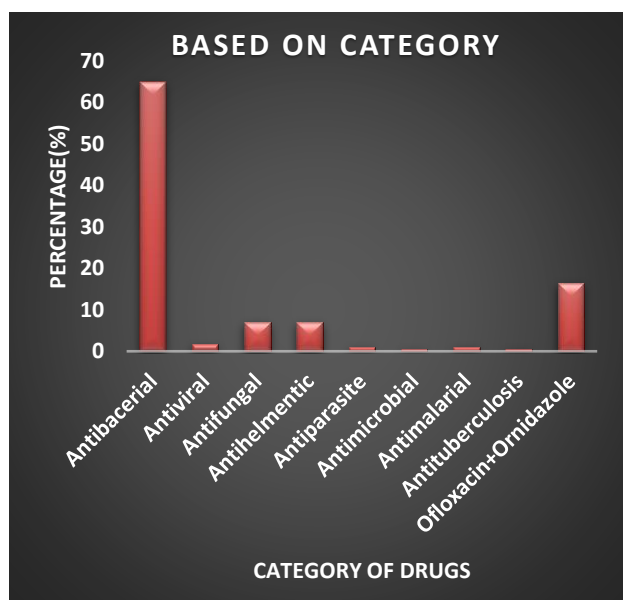
Figure 3: Percentage of anti-infective agents based on category

In the current study, most commonly used anti-infective agents were Amoxicillin+ clavulanic acid with 20.23%, followed by the drugs with Ofloxacin+Ornidazole were prescribed with 16.45% and the least used Anti-infective agents are Povidone with 0.09% the data was depicted in Figure 5 showing the end result was compared with different research performed through Sanket b Sathiya et

al.,[14] However of their study suggests that penicillin had maximum usually used followed by flwhat quinolones. This difference is due to the condition based on the patient. A study by Inese Svi Estina et al.,[15] concluded that the most frequently used antibacterial agent between 2006-2015 and 2017 was Penicillin.
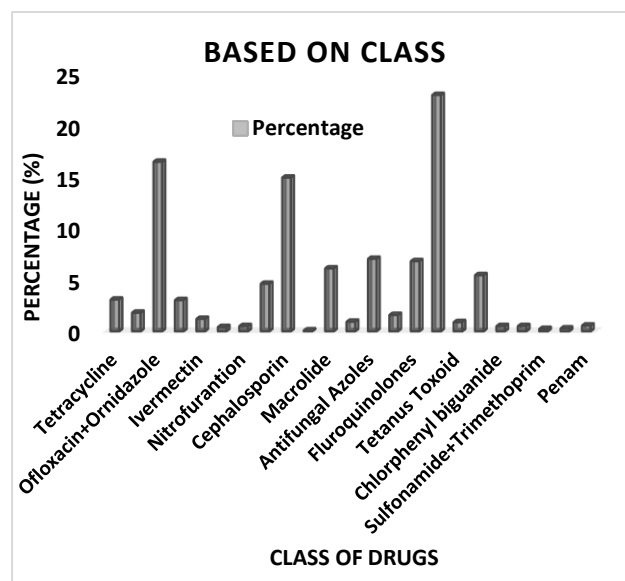
Figure 4: Prescribing frequency of anti-infective agents based on the class

Table 4: Based on the class

Class of drugs	No of drugs (n=2145)	Percentage (%)
Tetracycline	66	3.08
Aminoglycoside	39	1.81
Ofloxacin+Ornidazole	353	16.46
Cefixime+Ofloxacin	65	3.03
Ivermectin	26	1.21
Diethylcarbamazine citrate	9	0.42
Nitrofurantoin	11	0.51
Nitroimidazole	99	4.62
Cephalosporin	320	14.92
Povidone	2	0.09
Macrolide	131	6.11
Artelone+Pipperaquine	20	0.93
Antifungal Azoles	151	7.04
Synthetic nucleoside analogues	34	1.59
Fluroquinolones	146	6.81
Penicillin	492	22.94
Tetanus Toxoid	19	0.89
Albendazole	117	5.45
Chlorophenyl Biguanide	11	0.51
Antimycobacterial	11	0.51
Sulfonamide+Trimethoprim	5	0.23
Scabicides+Pipperaquine	6	0.28
Penam	12	0.56

CONCLUSION

From our study the usage of Anti-infective agents was more in females than males. Maximum number of patients were seen in age group between 51-60 due to immunity in old aged people was very low and can easily affected by infectious diseases. Antibacterial agents were most commonly used compared to the other anti-infective agents. According to our study, penicillin was most commonly used Anti-bacterial agent in 2020-2021.

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