

## Research Article



## Level of Patient Information on Ciprofloxacin Use

N.Kanaka durga devi\*, A.E.C.Vidya sagar, R.Mahesh, J.Kartheek, V.Karuna sree  
 KVSR Siddhartha College of Pharmaceutical Sciences, Vijayawada, Andhra Pradesh, India.  
 \*Corresponding author's E-mail: [nelluriss@rediffmail.com](mailto:nelluriss@rediffmail.com)

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### ABSTRACT

Ciprofloxacin is a synthetic antimicrobial agent of the fluoroquinolone class, effective in the treatment of a wide range of infections. Despite tremendous advancement in pharmaceutical formulations worldwide Antibiotics are considered as the most influencing in the management of disease and quality of life. Patient education is important in Indian setup because many patients are illiterate and come from low socio economic background. The appropriate use of antibiotic has a fundamental role in controlling resistance and in success of treatment of different infections. Therefore, the aim of this study was to assess the prescription and use of antibiotic. The use of Ciprofloxacin in 80 patients was monitored in two Primary Health Centers by questionnaires administered to patients and caregivers that assessed the social, demographic and clinical conditions compared with other antibiotics for different diseases.

**Keywords:** Antimicrobial agent, Fluoroquinolone, Health Centers.

### INTRODUCTION

It is usually difficult to appreciate and welcome a change. But change is a way of nature to bring progress and prosperity. An antibiotic is an agent that either kills or inhibits the growth of a microorganism.<sup>1</sup> A simple set of instructions may motivate the patients to use their antibiotics appropriately. Studies have confirmed that adherence to their medication is one of the most important factors that determine the therapeutic outcomes, especially in patients suffering from chronic illness.<sup>2</sup> Adherence to treatment and life style are the key links between treatment and its outcomes in medical care.<sup>3-4</sup> Ciprofloxacin (INN) is a second-generation fluoroquinolone antibiotic that inhibits the enzyme DNA gyrase, thus preventing the replication of bacterial DNA. Ciprofloxacin has a broad spectrum of antibacterial activity which includes the following bacteria: *Escherichia coli*, *Klebsiella* spp., *Enterobacter* spp., *Citrobacter* spp., *Edwardsiella tarda*, *Salmonella* spp.<sup>5-6</sup>

### Methodology

This study was carried out at out-patient and in-patient departments of Government General Hospital at Vijayawada and Dr. Pinnamaneni Siddhartha Institute of Medical Sciences & Research Foundation at Chinoutpalli. Patients with additional comorbidities like TB, Diabetes, Hyper/Hypotension, cardiac diseases, or any other chronic diseases were also included in the study. The present study aims at assessing the Market Research on Prescription Pattern of Ciprofloxacin bases on, 1. Name, 2. Age, 3. Gender, 4. Occupation/Profession, 5. Disease, 6. Mention the season during which the disease occurred, 7. Antibiotic prescribed, 8. Dose/Strength, 9. Formulation used, 10. Brand name, 11. Are you a diabetic/asthmatic/hypertensive/ suffering from any

other chronic/ acute illness?, 12. What is the treatment given?, 13. Any side effects (mild/moderate/severe) observed during treatment?, 14. Have you taken complete course of the antibiotic for the present infection (or) stopped in between?, 15. Specify reasons for discontinuation of medication?, 16. Are you relieved of the infection? and 17. The treatment given is satisfactory (or) not?.

### Therapeutic uses of Ciprofloxacin based on case studies

#### Bronchitis

Bronchitis is an inflammation of the mucous membranes of the bronchi (the larger and medium-sized airways that carry airflow from the trachea into the more distal parts of the lung parenchyma).<sup>7-9</sup> Bronchitis can be divided into two categories: Acute and Chronic.<sup>7-10</sup>

#### Traveller's diarrhoea

It is the most common illness affecting travellers.<sup>11</sup> TD is defined as three or more unformed stools in 24 hours passed by a traveller, commonly accompanied by abdominal cramps, nausea, and bloating.<sup>12</sup> Its diagnosis does not imply a specific organism, but enterotoxigenic *Escherichia coli* is the most commonly isolated pathogen.<sup>13</sup>

#### Dysentery

It is an inflammatory disorder of the intestine, especially of the colon, that results in severe diarrhoea containing blood and mucus in the faeces<sup>14</sup> with fever, abdominal pain<sup>15</sup>, and rectal tenesmus (a feeling of incomplete defecation), caused by any kind of infection. It is a type of gastroenteritis.



### Conjunctivitis

It is inflammation of the conjunctiva (the outermost layer of the eye and the inner surface of the eyelids).<sup>16</sup> It is commonly due to an infection (usually viral, but sometimes bacterial<sup>18</sup> or an allergic reaction).

### Typhoid fever

Also known simply as typhoid<sup>19</sup> is a common worldwide bacterial disease transmitted by the ingestion of food or water contaminated with the faeces of an infected person, which contain the bacterium *Salmonella enteric*.<sup>20</sup> The disease has received various names, such as gastric fever, abdominal typhus, infantile remittent fever, slow fever, nervous fever and pathogenic fever.

### Urinary tract infection

It is an infection that affects part of the urinary tract. When it affects the lower urinary tract it is known as a simple cystitis (a bladder infection) and when it affects the upper urinary tract it is known as pyelonephritis (a kidney infection).

### Tuberculosis

MTB, or TB (short for tubercle bacillus), in the past also called phthisis/pulmonalis or consumption, is a common, and in many cases fatal, infectious disease caused by various strains of mycobacterium, usually *Mycobacterium tuberculosis*.<sup>21</sup> Tuberculosis typically attacks the lungs, but can also affect other parts of the body. It is spread through the air when people who have an active TB infection cough, sneeze, or otherwise transmit respiratory fluids through the air.<sup>22</sup>

### Skin infection

It is an infection of the skin. Infection of the skin is distinguished from dermatitis<sup>23</sup>, which is inflammation of the skin, but a skin infection can result in skin inflammation. Skin inflammation due to skin infection is called infective dermatitis.<sup>23</sup>

### Nephritis

It is an inflammation of the kidneys and may involve the glomeruli, tubules, or interstitial tissue surrounding the glomeruli and tubules.<sup>24</sup>

## RESULTS AND DISCUSSION

Comparison of use of Ciprofloxacin with other antibiotics for different diseases is shown in Figure 1 Based on cumulative frequency curve for Ciprofloxacin; we noticed that Ciprofloxacin was frequently used than other antibiotics in specified diseases.

Percentage of patients using Ciprofloxacin and other antibiotics in various diseases is shown in Figure 2. The percentage of patients using Ciprofloxacin and other antibiotics used in Bronchitis, Traveller's Diarrhoea, Dysentery, Conjunctivitis, Typhoid, Urinary Tract Infections, Tuberculosis, Skin Infection are shown in Figures 2.1, 2.2, 2.3, 2.4, 2.5, 2.6, 2.7, 2.8 respectively. Pie

diagram in Figure 2.1 shows that Ciprofloxacin is most preferred antibiotic in treatment of Bronchitis, as 47% of the patients used this antibiotic, the remaining antibiotics Azithromycin, Clarithromycin, Sulphamethoxazole, Beclomethasone shared 32%, 7%, 7%, 7% respectively. Figure 2.2 shows that the preference for Ciprofloxacin (65%) in treatment of Traveller's Diarrhoea is 3.5 times more than Sulphamethoxazole (25%), Lopramide (10%) combined. Pie chart in Figure 2.3 shows that when compared to Ampicillin, Chloramphenicol and Clotrimaxazole Ciprofloxacin was preferred in treatment of Typhoid. The percentage of patients using Ciprofloxacin was 60% whereas the percentage of patients using Ampicillin, Chloramphenicol, and Clotrimaxazole was 20%, 10%, 10% respectively. The preference for use of Ciprofloxacin in Dysentery is depicted in the pie chart of Figure 2.4. In the treatment of Dysentery, Ciprofloxacin was preferred times more than Diloxanide Furoate, times more than Lopramide and times more than Metronidazole. Pie chart in Figure 2.5 compares the use of Ciprofloxacin with other antibiotics in treatment of Conjunctivitis; in the treatment of Conjunctivitis Ciprofloxacin was most preferred antibiotic among the tested drugs. 55% of the patients used Ciprofloxacin whereas Azithromycin, Gentamycin, Dexamethasone and Sulfacetamide shared 22%, 8%, 8%, 7% respectively. Pie chart in Figure 2.6 compares the use of Ciprofloxacin with other antibiotics in treatment of Urinary Tract Infections. In this, Ciprofloxacin is most preferred drug among tested drugs. 40% of the patients used Ciprofloxacin whereas Ceftriaxone, Doxycycline, Cefixime shared 35%, 14%, 11% respectively. The preference of use of Ciprofloxacin in Skin Infection is depicted in the pie chart of Figure 2.7. In the treatment of Skin Infection, Ciprofloxacin (55%) was preferred more than other tested antibiotics Azithromycin, Clotrimaxazole, Ampicillin which shared 28%, 9%, 8% respectively.

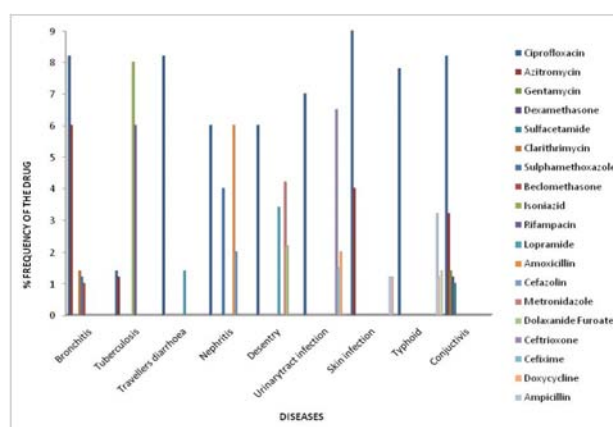


Figure 1: Cumulative frequency curve for Ciprofloxacin

Percentage of people completing or discontinuing the course is shown in Figure 3. According to study of Ciprofloxacin which included 80 patients, those completing the course were 67 and discontinuing the course were 13. 83.75% patients continued the treatment



until they were completely cured. Only 16.25% patients discontinued the treatment due to various reasons.

Percentage of people satisfied with the treatment compared with those who were not satisfied by the

treatment is shown in Figure 4. Based on case study People satisfactory of the treatment were 67 and not satisfactory were 13.

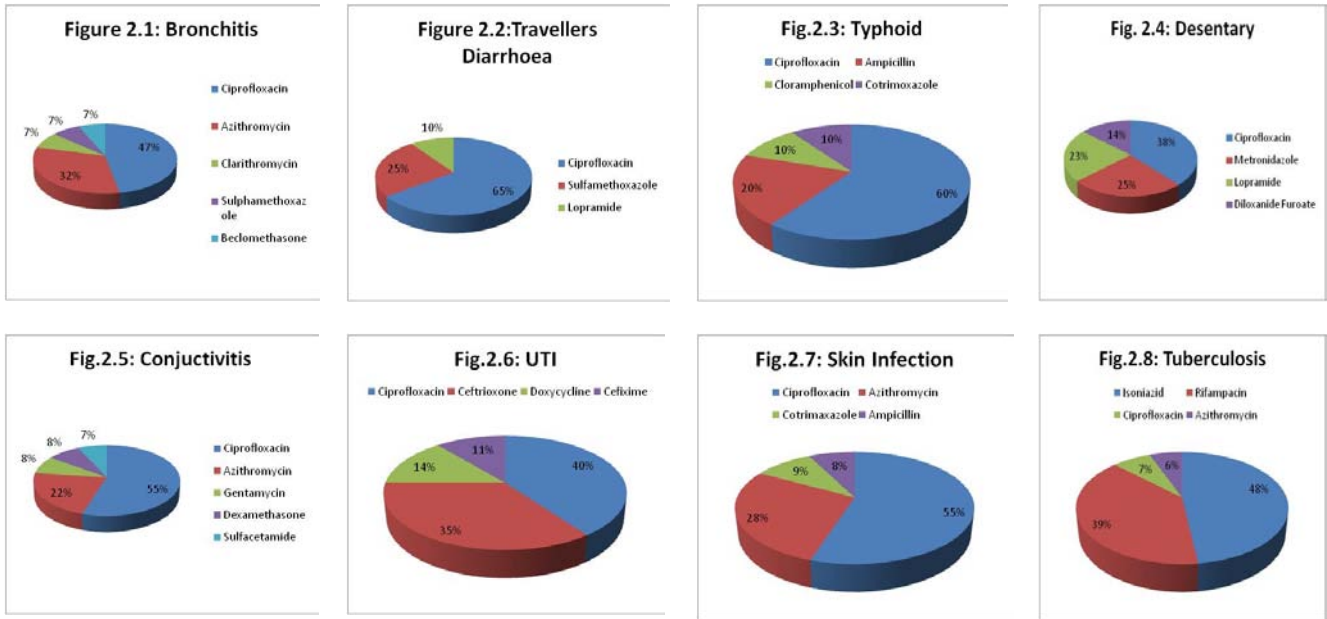


Figure 2: Pie charts for use of Ciprofloxacin for different diseases

Ciprofloxacin (No. of cases = 80)

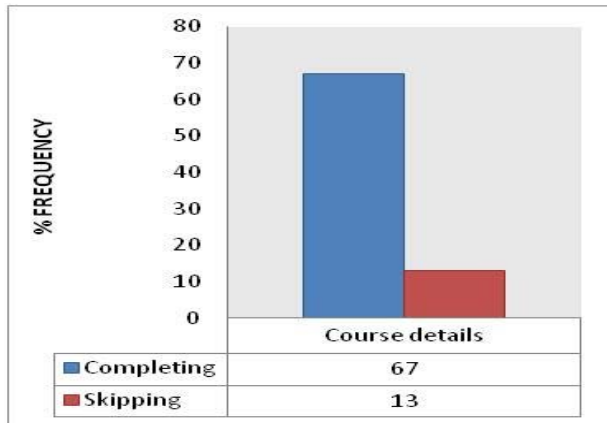


Figure 3: No. of patients completing/skipping

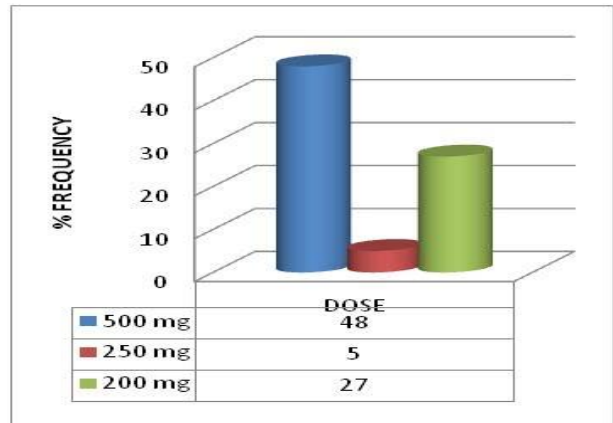


Figure 5: Different doses of medication

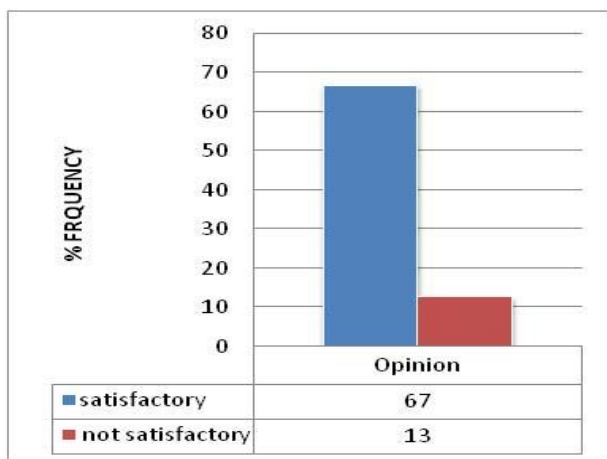


Figure 4: No of patients satisfactory / not the medication

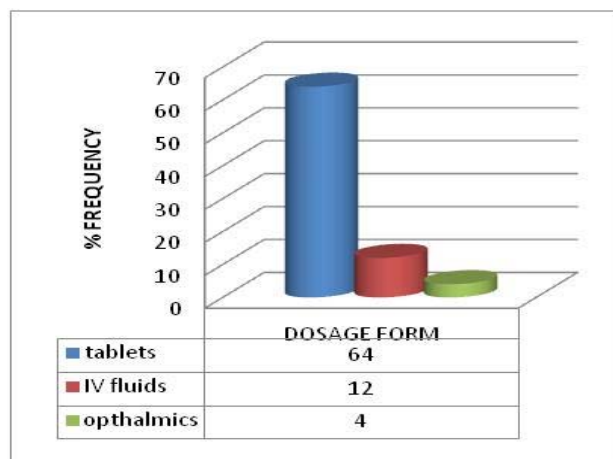
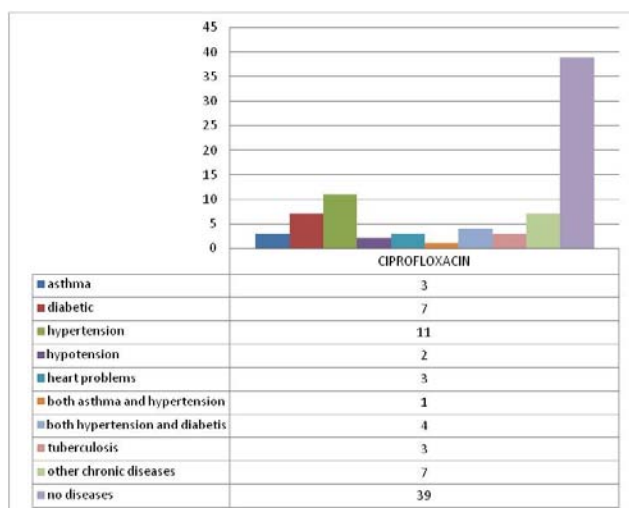


Figure 6: Different types of formulations used



**Figure 7:** For patient suffering from any other diseases

No. of patients using different doses of Ciprofloxacin Tablets is shown in Figure 5. Patients using 500mg-48, 250mg-5 and 200mg-27. No. of patients using different types of formulations of Ciprofloxacin is shown in Figure 6. Patients using Tablets-64, IV fluids-12 and Ophthalmics-4.

Among the 80 patients selected for the study some of them were found to have additional comorbidities. This is depicted in Figure 7. Details are Asthma-3 patients, Diabetis-7 patients, Hypertension-11 patients, Heart problems-3 patients, Hypotension-2 patient, Both Asthma and Hypertension-1 patient, Both hypertension and diabetes-4 patients, Tuberculosis-3 patients, Other Chronic Diseases-7 patients and No diseases -39 patients.

## CONCLUSION

Compared with the results of the study, Ciprofloxacin is still the most frequently prescribed antibiotic, many other changes have been observed in antibiotic prescription attitudes. It is essential to be aware of guidelines, avoid personal decisions and take measures based on strong clinical evidence. The proper use of the medication, in addition to greater therapeutic success, decreases the possibility of the appearance of resistant microorganisms. Since the scope of the present study is limited as the number of patients studied is less, extensive studies are required to confirm our findings.

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