

Use of Antimicrobials among Private Practitioners of Rajshahi Metropolitan Area

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A cross sectional type of descriptive study was conducted to evaluate the use of Antimicrobials among the different category of private practitioners practicing within Rajshahi Metropolitan Area from 1st November, 2014 to 1st April, 2015. Data were collected from 300 patients, 3 Antimicrobial prescribed prescriptions from each practitioner and coded as well as analyzed by SPSS version 17. The study was conducted by focusing on the infectious disease profile of Rajshahi city, practitioners' tendency of prescribing Antimicrobials and Fixed Dose Combination (FDCs). Out of 300 prescriptions, 132 prescriptions were with a written diagnosis. Infections of genitorurinary tract (5.33%) was most common followed by infections of digestive system (4%) and skin infections (3.33%). Ciprofloxacin was most commonly used antibacterial (16.67%) followed by Azithromycin (11.33%). FDCs were used only in 11% prescriptions. The most commonly used FDCs of antibiotic was Amoxycillin + Clavulanic acid, used in 36.36% cases. The prescribers should be more aware of using antimicrobial agents and those antimicrobials should be used more which are less prone to develop resistance.

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Key words: Antimicrobials, FDCs, Metropolitan Area

Introduction

Antimicrobials are considered as the greatest invention of the twentieth century.¹ They are effective and powerful device against various life threatening infections and have saved millions of lives since their first appearance seventy years ago.²

Antimicrobials are commonly used to treat infectious diseases caused by various microorganisms. For example: Urinary tract infection, Respiratory tract infection, Infection after surgery, Blood stream infections and many others.³ Fixed dose

combinations (FDCs) are prudent and intelligent combination of different antibiotics which are very helpful in treating certain difficult infections and in preventing or controlling resistance. Irrational and unnecessary fixed dose combinations can add to the cost and adverse effects and help in the development of antimicrobial resistance.¹

Now a days too many antimicrobials and their over using by the prescribers, slowly and steadily increasing the number of mutant and drug resistant micro-organism.⁴

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Clinical misuse of antibiotics may be more common among private practitioners than among the doctors working in public hospitals. Private practitioners claim higher fees, the requirement for antibiotics seen in private patients is higher and more drugs are available in private clinics and dispensaries than in public hospitals.^{5,6,7}

It is seen more or less in every prescription that there is indiscriminate use of antimicrobial agents. No one is controlling the situation. Though our country is running by drug administration authority, a consumer can buy antimicrobials without showing prescription. It is no doubt an alarming condition. Persistent indiscriminate use may raise complete antibiotic resistance all over the world in 7-10 years from now.⁸ Though it is becoming an emergency situation for public health care, there is a need of auditing of prescriptions from various practitioners having different category of degrees to see the use of antimicrobial agents for controlling the situation.

Methods

Study design: it was a cross sectional descriptive type of study

Sample size: 300 prescriptions containing antimicrobial drugs from 100 private practitioners: 3 prescriptions from each practitioner.

Inclusion criteria: Prescriptions having antimicrobials from all patients of extreme of ages and genders who visited in private chambers of physicians within Rajshahi Metropolitan area.

Method of data collection: Field visits were conducted to collect data. 100 Physicians were selected randomly by lottery. Then the addresses of their private chambers were enlisted and located. The prescriptions were

collected from the patients shortly after their visit to the doctors by taking photos of those prescriptions. Some prescriptions were also collected from in front of the dispensaries after the patients purchasing of their prescribed drugs. Total of 845 prescriptions were collected from 146 private practitioners chambers, among which 300 prescriptions from 100 practitioners were finally taken as sample on the basis of inclusion criteria.

Data analysis: After collecting the prescriptions (raw data), all data were converted in usable form by considering them according to the checklist. The usable forms were maintained in files and on completion of field visit the data were coded to enter into the SPSS software. SPSS 17.0 version was used for data entry and analysis. After data analysis results were find out according to objectives, study results were presented in the form of tables, chart, graphs and description of the key findings according to need.

Variables/Parameters: Details of each prescription was analyzed as per the following parameters.

- Infectious disease pattern of the prescriptions
- Prevalence pattern of prescribing Antibiotics
- Prevalence pattern of prescribing FDCs

Results

The patients having ten common infections visited private practitioners chamber are shown in Table I with percentage. Out of 300 prescriptions, infections of genitourinary system were most common 16 (5.33%). Patients also complaints of various infections related to digestive system including appendicitis, hepatitis, cholecystitis etc which were second most common 12 (4%) in position .Followed by skin, respiratory tract, gynae and obstetrical infections, ear infections, septicemia, eye infections, post

operative complications and typhoid fever were 3.33%, 2.66%, 2.33%, 2%, 1% and 1% respectively. There were about 132 prescriptions (44%) with a written diagnosis. Rest of 167 (55.66%) did not have any written diagnosis. One prescription contained a diagnosis which was unreadable due to handwriting.

Table I: Distribution pattern of infectious disease profile

Serial No.	Infectious disease	Number of cases, N=300	Percent (%)
1	Infections related to genitourinary system	16	5.33
2	Infections of digestive system	12	4
3	Infections of skin	10	3.33
4	Infections of respiratory tract	8	2.66
5	Infections related to gynae and obstetrics	7	2.33
6	Infections of ear and mastoid region	6	2
7	Infections of blood and lymphatic system	3	1
8	Infections of eye	3	1
9	Post operative infections	2	0.66
10	Typhoid fever	2	0.66

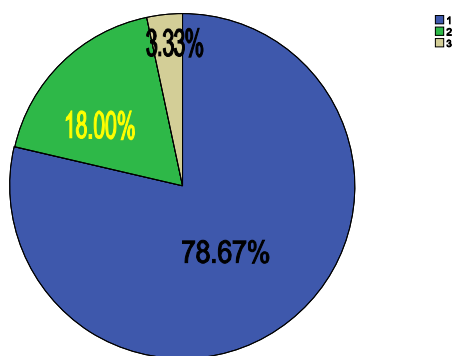


Figure 1. Number of antimicrobials prescribed per patient

The percentages of patients receiving various numbers of antimicrobial drugs are shown in Figure 1. Out of 300 antimicrobial drugs containing prescriptions, 236 (78.7%) were prescribed one antimicrobial drug, 54 (18%) were prescribed two antimicrobial drugs and only 10 (3.3%) were prescribed more than two antimicrobial drugs.

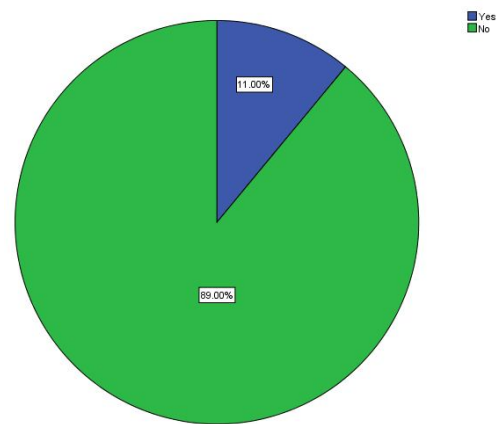


Figure 2. Showing use of Antimicrobials in Fixed Dose Combinations

The percentage of patients prescribed antimicrobial Fixed Dose Combinations are shown in Figure 2. Out of 300 prescriptions, 33 (11%) contained Antimicrobial FDCs. Another 267 (89%) were out of FDCs.

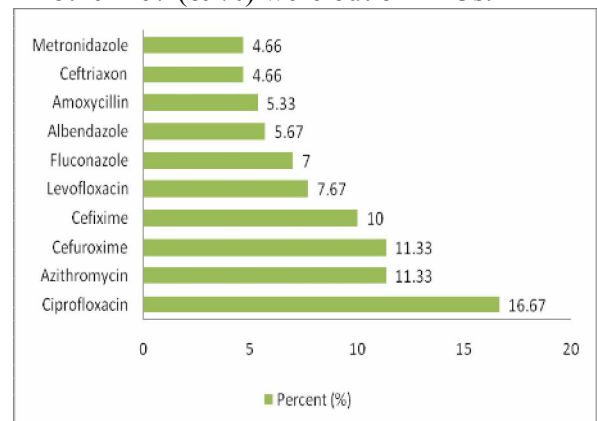


Figure 3. Distribution of most commonly prescribed Antimicrobials

The ten most common prescribed antimicrobial drugs are shown in Figure 3. Most commonly prescribed antimicrobial drug was Ciprofloxacin 50 out of the 300 prescriptions followed by Azithromycin, Cefuroxime, Cefixime, Levofloxacin, Fluconazole, Albendazole, Amoxicillin, Ceftriaxon and Metronidazole were 34, 34, 30, 23, 21, 17, 16, 14 and 14 prescriptions respectively.

Table II: Drugs prescribed as fixed dose combination

Serial No.	Drugs prescribed in FDCs	No. of times Prescribed (N=33)	Percent (%)
1	Amoxicillin + Clavulanic acid	12	36.36
2	Cefuroxime + Clavulanic acid	9	27.27
3	Cefixime + Clavulanic acid	6	18.18
4	Sulfamethoxazole+ Trimethoprim	2	6.06
5	Pipercillin + Tazobactam	1	3.03

The percentages of the prescribed FDCs were shown in Table 2. Fixed Dose Combinations were prescribed in 33 prescriptions out of total 300 prescriptions. The most commonly prescribed Fixed Dose Combination was Amoxicillin + Clavulanic Acid which were prescribed in 12 (36.36%) prescriptions out of 33 prescriptions followed by Cefuroxime + Clavulanic Acid, Cefixime + Clavulanic Acid, Sulfamethoxazole + Trimethoprim and Pipercillin + Tazobactam were 27.27%, 18.18%, 6.06% and 3.03% respectively.

Discussion

The results of the study give us a general idea about the use of antibiotics and the FDCs among the doctors practicing in private chambers within Rajshahi Metropolitan area. The accuracy of the antibiotics prescribed against the infections was not observed as these were prescribed by the prescribers

having specialization on the related sector. But in general which antibiotics and FDCs are being used frequently in Rajshahi Metropolitan area was observed.

In this study, only antimicrobial prescribed prescriptions were included. 3 prescriptions were collected from each physician. A total of 100 physicians chamber were targeted. So a picture on the infectious disease pattern of the city has been found from the study. There were about 132 (44%) prescriptions out of total 300 prescriptions with a written diagnosis. Infections of genitorurinary tract (5.33%) was most common indication for visiting private practitioners chamber followed by infections of digestive system including appendicitis, hepatitis, cholecystitis etc (4%), skin infections (3.33%) and respiratory tract infection (2.66%).

In the present study, as only antimicrobial prescribed prescriptions were included, so percentage of encounters with an antimicrobial prescribed was 100%. 78.7% prescriptions contained one antimicrobial drug, 18% prescriptions were prescribed two antimicrobial drugs where only 3.3% prescriptions were with more than two antimicrobials. Ciprofloxacin was most commonly used antibacterial (16.67%) followed by Azithromycin (11.33%) and Cefuroxime (11.33%). Fluconazole was most commonly used antifungal (7%), widely used antihelminthic drug was Albendazole prescribed in 5.67% prescriptions and as antiprotozoal Metronidazole was commonly used (4.66%).

FDCs were used only in 11% prescriptions. Three most commonly used Fixed Dose Combination of drugs were Amoxicillin + Clavulanic acid, used in 36.36% of all the 33 FDC prescribed prescriptions followed by Cefuroxime + Clavulanic acid (27.27%) and Cefixime + Clavulanic acid (18.18%).

Conclusion

This study provided a feature on the use of antimicrobial agents among private practitioners of Rajshahi Metropolitan area, as over use of this agents may create resistance against the agents which is now a days an emerging problem and national threat. This study also gives an idea about the infectious disease profile of this area, number of antimicrobials prescribed per patient, use of Antimicrobials in Fixed Dose Combinations, Drugs prescribed as fixed dose combination and the antimicrobials which are most frequently used in this area.

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