RESEARCH ARTICLE

Drug Utilization Pattern of Antibiotics in Delhi NCR

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ABSTRACT

Introduction: The need for antibiotics is high in developing countries with a high infectious disease burden. India really has a high incidence of infectious diseases in the entire globe, making the improper use of antibiotics a frequent occurrence. This study aims to determine the drug utilization of antibiotics prescribed by doctor in Delhi NCR area. The present study needs to take a deeper dive into antibiotics and its positive and negative impacts on society's health and welfare. The study involve the determination of various factors like type of therapy, drug most extensively used by patients, sex distribution of people using antibiotics, route of administration of a drug and most use dosage form of drugs.

Materials and Methods: A concurrent study was carried out online through google form randomly in the Delhi NCR area. Total 87 respondents were included in the study. The study was carried out for One month (April 2022).

Result and Discussion: The evaluation was done through an online survey conducted in April 2022. The data of 87 patients were evaluated. It was concluded that antibiotics can be consumed at any age, according to the doctor's advice and prescription. On the basis of study it was concluded that for 49.4% the antibiotic course duration was 3–5 days. It was found that nearly 59.3% of the population who consumed antibiotics suffered from sore throats. Based on the survey, most of the population followed monotherapy regime as compared to other regimes. The majority of the population took antibiotics as a tablet, making it 98.8% of the total consumption form. Azithromycin and Amoxicilllin are the most used antibiotics, 66.2% of the total population were using azithromycin while 55.4% were using amoxicillin.

Keywords: Antibiotic, Questionnaire, Monotherapy, Resistance, Drug Monitoring.

INTRODUCTION

Antibiotics are the most prescribed drugs in outpatient populations[1,2] but more than 30% of patients take

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them unnecessarily.[3] The World Health Organization (WHO) advocates the correct use of antibiotics to avoid antibiotic resistance, which has reached alarming levels across the globe. In community settings, antibiotics are frequently prescribed therapeutic medicines for elderly adults and children. Antibiotics are often used to treat bacterial infections such as urinary tract infections (UTIs), pneumonia, and skin/soft tissue infections, which are common in older persons, despite the fact that some illnesses do not normally improve from antibiotic therapy.[4] It has been estimated that nearly 50% of children's antibiotic prescriptions are unnecessary[5] and do not comply with national guidelines.[6]

Antibiotics were considered a magic bullet that selectively targeted microbes that were responsible for disease causation but at the same time would not affect the host. Fleming was the first to caution about the potential resistance to penicillin if used too little or for too short a period of treatment.[7] The period from the 1950s to 1970s was thus considered the golden era for discovering novel antibiotics classes.[8]

Different antibiotic prescribing patterns exist according to age and geographical settings.[9] Indeed, differences in antibiotic prescription rates were found between different countries and at a regional level.

The need for antibiotics is high in developing countries with a high burden of infective diseases. India has the greatest infectious disease rate in the world, making the inappropriate use of antibiotics a common phenomenon here.[10-11] For almost all therapeutic medications, particularly antibiotics, which are frequently used in hospitals and the community, drug utilisation (DU) studies are essential[11].In India, the prevalence range of antibiotic use is 24 to 67%, which causes its widespread use in an irrational way that ultimately leads to emergence of resistance.

Antibiotics are one of the most expensive drugs in the market today. In general, 20% to 50% of all pharmacy expenditure for treating patients illnesses in hospitals are spent on intravenous antibiotics, maintaining the quicker growth and specialized category of antibiotics in the hospitalized area.[12]

The drug utilization study aims to promote rational and appropriate use of drugs at the lowest possible dose and cost.WHO has specified prescribing indicators, patient care indicators, facility indicators and complementary

Table 1: Gender distribution

Gender	Number	Percentage
Male	58	66.7%
Female	29	33.3%

Table 2: Age distribution

Age group (year)	Number	Percentage
18yr – 30	51	58.6%
31yr - 40	10	11.5%
41yr – 50	18	20.7%
51yr – 60	5	5.7%
More than 60	3	3.4%

Table 3: Type of infection

Responses	Number	Percentage (%)
Ear infection	13	16
Skin infection (including acne)	37	45.7
Sore throat	48	59.3
Uti	11	13.6
Whooping cough	16	19.8
Sinus infection	9	11.1
Liver problem	1	1.2
Did not suffered from anything	2	2.5

Table 4: Antibiotic consumption

Respone	Number	Percentage (%)
Yes	77	88.5
No	10	11.5
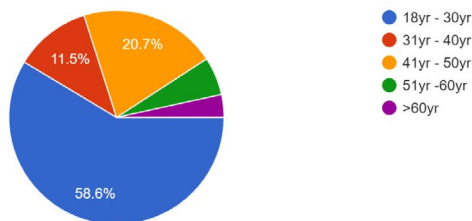
Figure 1: Representing the age distribution

Table 5: Duration of prescription

Respone	Number	Percentage (%)
3 Days	31	38.3
5-7 Days	40	49.4
7-10 Days	6	7.4
10-15 Days	2	2.5
30 Days	0	0
I don't remember	2	2.4

Table 6: Route of administration

Respone	Number	Percentage (%)
Oral	72	97.3
Parental	6	8.1
Topical	3	4.1

Table 7: Doasge form of the antibiotics

Respone	Number	Percentage (%)
Tablets	81	98.8
Injections	8	9.8
Powders	4	4.9
Suspensions	1	1.2
Gels	6	7.3
Ointments	1	1.2

Figure 2: Representing data of commonly used antibiotics
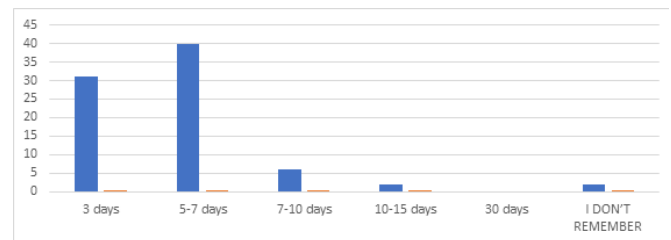
Figure 3: Representing duration of prescription

indicators for planning and conducting drug utilization studies. This study aims to determine the drug utilization of antibiotics prescribed by doctor in Delhi NCR.The evaluation pattern provides us a clear view of the rationality of prescribing.

MATERIALS AND METHODS

The study wascarried outfor One month (April 2022) through an online Google form. The participant was selected based on Inclusion and exclusion criteria. Inclusion criteria include participants who want to be a part of the 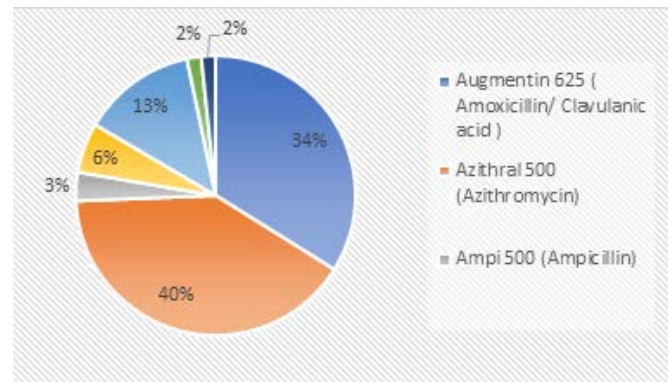study voluntarily. Exclusion Criteria included those who were less than 18 years. The data were collected from a sample size of 87 males or females from Delhi NCR area.

The data was subjected to descriptive analysis by microsoft excel. The utilization of drugs was analyzed as per WHO prescribing indicators and presented as a percentage.
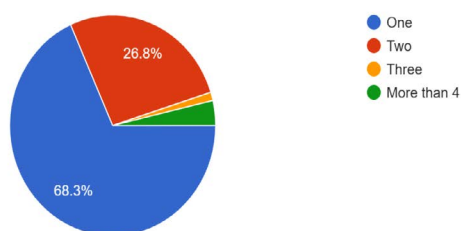
Table 8: Type of therapy

Respone	Number	Percentage (%)
One	56	68.3
Two	22	26.8
Three	1	1.2
More than 4	3	3.7

Table 9: Recovery period duration

Respone	Number	Percentage (%)
3-5 Days	41	49.4
One week	27	32.5
10-15 Days	8	9.6
30 Days	5	6
Treatment still ongoing	2	2.4

How many antibiotics were prescribed to you by the doctor for your illness ?
82 responses

Figure 4: Representing the data of type of therapy

How long it took for you to recover from the disease/ infection?
83 responses
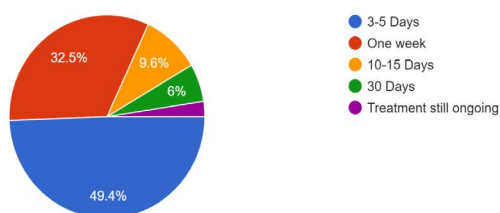
Figure 5: Recovery period duration of volunteers

RESULT AND DISCUSSION

In our study a total of 87 patients record were analyzed Male to female ratio was 1:2 (Table 1) (Figure 1). Majority of the patients 51 (58.6%) were in 18-30 years age,followed by 18 (20.7%) in 41-50 years (Table 2). 59.3% of the population suffered from sore infection. Thus it being the top reason for people consuming antibiotics. Then comes skin infection from which 45.7% of the population have suffered (Table 3) and 88.5% of the population who participated in the survey have consumed/used antibiotics to cure themselves of illness (Table 4). Azithromycin is most consumed antibiotic, consumed by 66.2% of the total population that participated in the survey. It is the most prescribed broad spectrum antibiotic. After that is amoxicillin with 55.4% consumption (Figure 2).

The survey showed that 49.4% of the total population were generally given a course of a week of antibiotic therapy by their doctor (Table 5) (Figure 3).

Percentage of drug encounters with an oral route 97.3% (Table 6) and majority of the population took antibiotics in the form of tablet, making it 98.8% of the total consumption form. 9.8% antibiotics injections were used (Table 7).

Based on the survey, most people were following monotherapy as compared to other therapy. 68.3% of the total population were on monotherapy while 31.7% were on combinational therapy(Table 8) (Figure 4 and 5). Days 3–5 recovery period was observed in 49.4% of the total population while one week recovery was observed in 32.5% (Table 9).

CONCLUSION

The primary object of this project was based on drug utilization pattern of antibiotic drug by conducting a survey online. From the result of the survey, it was concluded that azithromycin was the most prescribed broad spectrum antibiotic. Duration of the prescription is mostly 5–7 days and oral route was most common route of drug administration. The majority of the population took antibiotics in tablet, making it 98.8% of the total consumption form. Based on the survey, most people were following monotherapy as compared to combination therapy and recovery period is generally 3–5 days.

The worldwide increase in antibiotic is of great concern and it is the responsibility of the prescribers to develop good prescribing habits and prescribe in accordance of WHO prescribing . It is role of clinical pharmacist to provide patient education and counseling in order to prevent irrational use of antibiotics.

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Conflict of Interest

No potential conflict of interest was reported by the authors

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