

Study the Antibiotic Misuse by People in Al-Najaf City

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ABSTRACT

Antibiotics are believed the most appropriate agent used to treat infection. There are several important points that have found to limit antibiotics efficacy to complete recovery of disease. Therefore, the current research aimed to discuss the most common antibiotics misuse. Subject of study are included the patients in Al-Sader teaching city, private pharmacy. The data are collected including indication of drug, duration, daily dose, and convenience of pharmacist. Also, misuses are classified according to suggested classification such as, prescribing faults, prescribing errors, and medication errors. The statistical analysis carried out using chi-X² test to evaluate the relationship between collective data. The patients are classified according to their ages (<45, and > 45) years and sexes.

It was indicated there is a strong ($\chi^2 = 4.99$, $p < 0.05$), ($\chi^2 = 4.5$, $p < 0.05$) between indication and both duration and daily dose. Also, it was found pharmacist advice effect strongly on both duration and daily dose ($\chi^2 = 21.55$, $p < 0.001$), ($\chi^2 = 5.91$, $p < 0.05$). Moreover, the types of misuse are impacted drug duration ($\chi^2 = 7.40$, $p < 0.05$), ($\chi^2 = 5.87$, $p < 0.05$) in both of single and combined dose. The prevalence of Amoxil disturbance in consultant unit, while ceftriaxone was more type in the admitted patients.

Keywords- Antibiotics, antibacterial resistance, antibiotics misuse.

I. INTRODUCTION

Disease caused by pathogenic organisms may consider the most common type of diseases that are afflicted human for decades⁽¹⁾. Antibiotics have been the most commonly used to treat bacterial infection. Which are natural substances produced by certain groups of microorganisms⁽²⁾.

It was proposed that antibiotics have been critical in the fight against infectious disease caused by bacteria and other microbes over the 60 years. However, disease-causing microbes that have become resistant to antibiotic drug therapy are an increasing public health problem. For example, tuberculosis, pneumonia, septicemia are just a few of the diseases that have become hard to treat with antibiotics. One part of the problem is

that bacteria and other microbes that cause infections are remarkably resilient and have developed several ways to resist antibiotics and other antimicrobial drugs. Another part of the problem is due to increasing use, and misuse, of existing antibiotics in human and veterinary medicine and in agriculture^(3,4,5). This research shed light on the role of some antibiotics misuse that may prove drugs resistance rather than disease overcome.

II. METHOD: THE COLLECTION OF DATA

This random study was conducted in Al-Najaf government in cooperation with Al-Sader medical city, comprised from 287 case in general. Data were divided into three categories. It includes a collection of data from private pharmacy, there are 164 case, in-patient (who are admitted in the hospital are 73 case) and out-patients (whom are visit consultation department in the hospital are 50 case).

Data was collected included medical indication of each case, type of prescribed medication, duration of the use. In addition, data was focused if either a pharmacist provides patients with the drug related information. In addition, antibiotics interaction was taken into consideration.

Three possible kind of misuse of antibiotics in the prescription were compared, based on classification that indicated by Velo and Minuz (2009)⁽⁶⁾. These including first, medication errors such as knowledge base mistake and rule base mistake. Secondly, prescribing faults, that consist of ineffective drug use, irrational, inappropriate, over and under use of drug and related a decision make. It also includes prescribing errors that are deal with timing, frequency, duration and the required antibiotics dose. The statistical analysis between three obvious type and available data was carried out using chi-x² test. P value of <0.05 was regarded statistically significant.

III. THE RESULTS

Table (1) showed descriptive data of out-patients group while table (2) explained the relationship between

indication and duration of antibiotics, there is a significant ($X^2 = 4.99, p < 0.05$) relationship between both indication and duration. In similar way, there is a significant ($X^2 = 4.5, p < 0.05$) relationship between duration and daily dose (table 3) and pharmacist advice impact on both daily dose, duration exhibited that a strong significant ($X^2 = 21.55, p < 0.001$) and ($X^2 = 5.91, p < 0.05$) respectively as shown in tables (4&5). Tables (6,7) showed the impact of three misuse types on the duration of both single and combined dose, it indicated that a significant ($X^2 = 7.40, p < 0.0$), ($X^2 = 5.87, p < 0.05$) relationship between studied parameters. In addition, the tables explained that predominance of prescribing faults 62.96% in single prescription compared with prescribing errors that are predominated in combined prescription. Regarding the case in consultation unit, the results appeared predominance Amoxil antibiotic, while in-patients case, ceftriaxone is the predominated drug.

IV. DISCUSSION

In the current study, the faults associated with antibiotics intake are considered a major factor behind a crisis of antibiotics resistance, the fault of both health care workers and patients. Indication and both of duration and daily dose ($p < 0.05$) which means the dependent of both duration and drug dose on correct indication. Some studies explained that a difference's responses towards antibiotics were mainly found at informed prescription and use of multiple agents or broad spectrum agents that not needed⁽⁷⁾. This would be resulted in uncorrected both duration and drug daily dose that might be associated with the delay recovery of patients⁽⁸⁾. Moreover, antibiotics resistance that can be devolved through reducing number of doses and or/ used it at irregular time⁽⁷⁾. This speculation was based on the mechanisms of some antibiotics that have been persist and potentially accompanied with an extending resistance after years of antibiotics use^(9,10).

Regarding provide patients with useful information related antibiotics use. The results indicated a strong effect of presence of pharmacist advice on drug duration and daily dose ($p < 0.001, p < 0.05$). Many studies have provided that role of knowledge base mistakes to cause antibiotic resistance in different ways. This means

that pharmacist's advice could help to reduce antibiotic misuse, which would be resulting in more benefits during drug therapy⁽¹¹⁾.

However, the current results exhibited that a significant ($p < 0.05$) relationship between duration and three exiting types of antibiotics misuse in both single and combined prescription. It is said that the duration of antibiotics are widely disturbed by using ineffective drugs have been identified as causes for an enhanced rate of resistance development⁽¹²⁾. In addition, in combined prescription, that usually prescribed in order to minimize development the resistance to single antibiotics. Also, it has given for the patients when the first drug did not work⁽⁹⁾. This usually explained by insufficient time between antibiotics that used through treatment. Also, unfinished antibiotic prescriptions may leave some bacteria alive or may expose them to sub-inhibitory concentrations of antibiotics for a prolonged period of time. This has led to completely resistant to all known treatments and hence incurable⁽¹³⁾.

One problem is the casual use of antibiotics in medical situations where they are of no value. This explains the predominance disturbance of Amoxil in consultant unit compared with ceftriaxone in the admitted patients. This is the fault of both health care workers and patients. Prescribers sometimes thoughtlessly prescribe according to patients demand. This leads to use of antibiotics in circumstances where they are of not needed. Another problem is patient failure to adhere to regimens for prescribed antibiotics. However, both patients and doctors need to realize their responsibility when they begin an antibiotic regimen to combat an infectious disease. This based mostly on the way to cross all the faults that are mentioned earlier⁽¹⁴⁾.

V. CONCLUSION

Thus, we conclude that indication of antibiotics should be strongly depended for infection treatment to avoid adverse drug reaction. From the results discussed above we recommend that pharmacists can a guidance to appropriate choose of antibiotic however, inconvenience pharmacists might be just to provide patients with their request without helpful information that cause resistance than response.

Table 1: Frequencies of outpatients sorting by their sexes and ages.

Sex	Age (years)		total
	>45	<45	
Males	81(73.63%)	29(26.37%)	110(67%)
Females	26(48.15%)	28(51.85%)	54(33%)
Total	107(78%)	57(22%)	164

Table 2: The impact of indication on duration of antibiotics of outpatients prescription.

Indication			
Duration	Correct	Incorrect	total
Correct	99	8	107
Incorrect	41	11	52
Total	140	19	164

$X^2= 4.99, P< 0.05$

Table 3: Relation between daily dose and indication of outpatients in studied population.

Indication			
Duration	Correct	Incorrect	Total
Correct	85	54	109
Incorrect	9	16	25
Total	99	70	164

$X^2= 4.5 P< 0.05$

Table 4: The impact of Pharmacist advice on duration of antibiotics of outpatients

Pharmacist advice			
Duration	Present	Absence	Total
Correct	75	22	97
Incorrect	27	40	67
Total	102	62	164

$X^2= 21.55 P< 0.001$

Table 5: The impact of Pharmacist advice on daily dose of antibiotics of outpatients

Pharmacist advice			
Daily Dose	Present	Absence	Total
Correct	69	20	89
Incorrect	44	31	75
Total	113	51	164

$X^2= 5.91 P< 0.05$

Table 6: Duration effect in relation to prescribing errors of inpatients in single prescriptions.

Prescription errors	Single		Total
	+ve	-ve	
Prescribing faults	17 62.96%	10 37.04%	27
Prescribing errors	4 25 %	12 75%	16
Medication errors	2 25%	6 75%	8
Total	23	28	51

$X^2= 7.40, p<0.05$

Table 7: Duration effect in relation to prescribing errors of inpatients in combined prescriptions.

Prescription errors	Combined		Total
	+ve	-ve	
Prescribing faults	2 40%	3 60 %	5
Prescribing errors	6 66.67%	3 33.33 %	9
Medication errors	8 100%	0 -	8
Total	16	6	22

$X^2 = 5.87, p < 0.05$

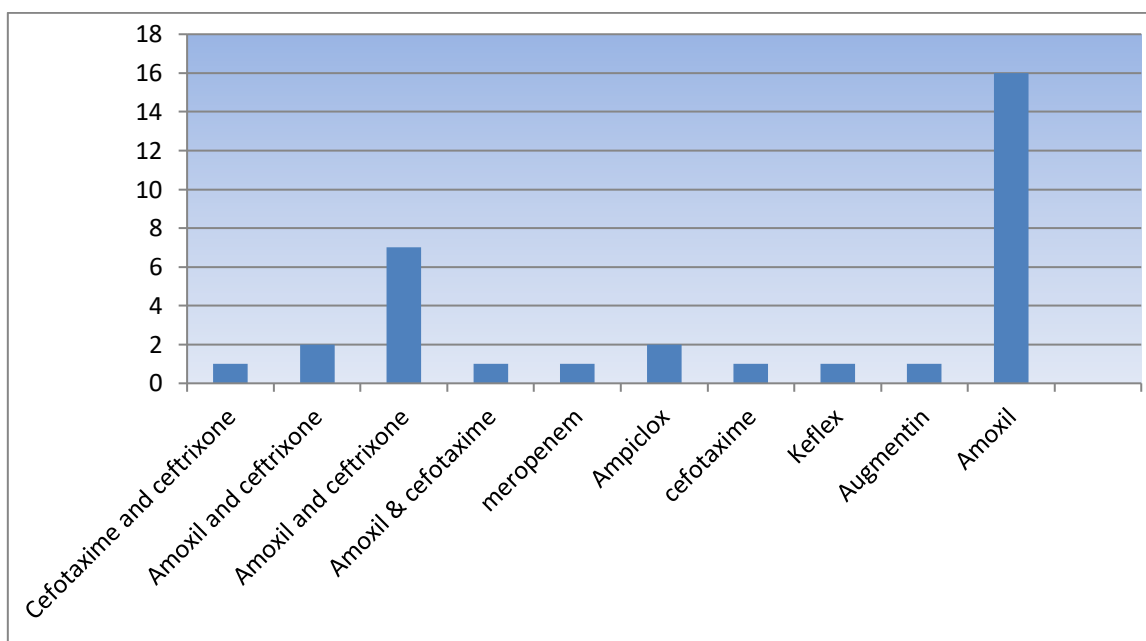


Figure 1: The disturbance of antibiotics in consultant unit.

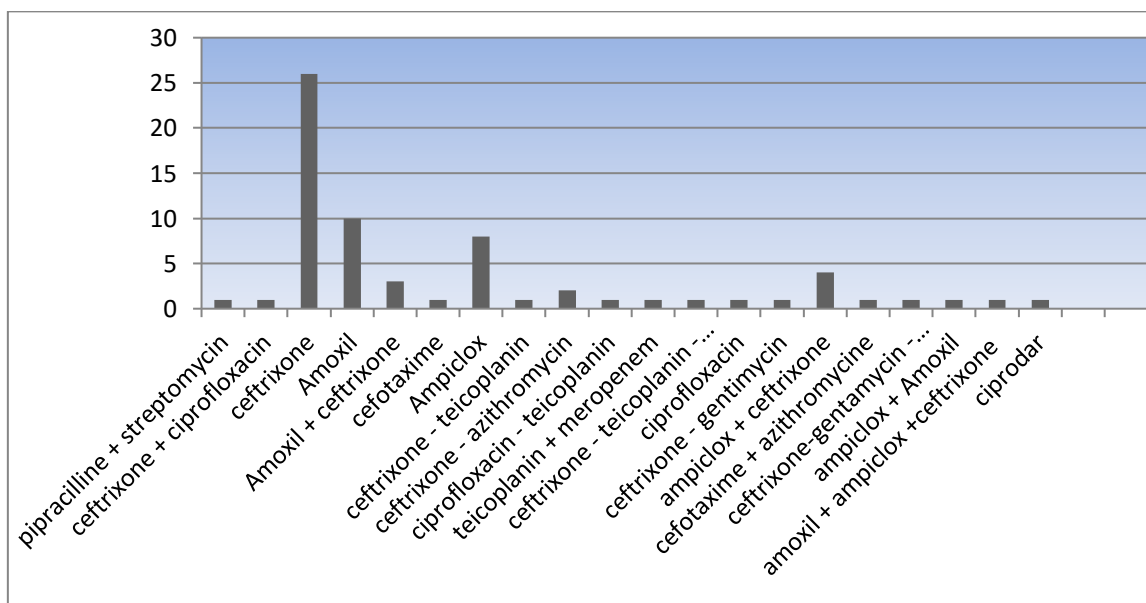


Figure 2: The disturbance of antibiotics of inpatients prescription.

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