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The Appropriateness of the Use of Antibiotics in Baghdad
Hospitals: An Empirical Study in Al-Furat Hospital

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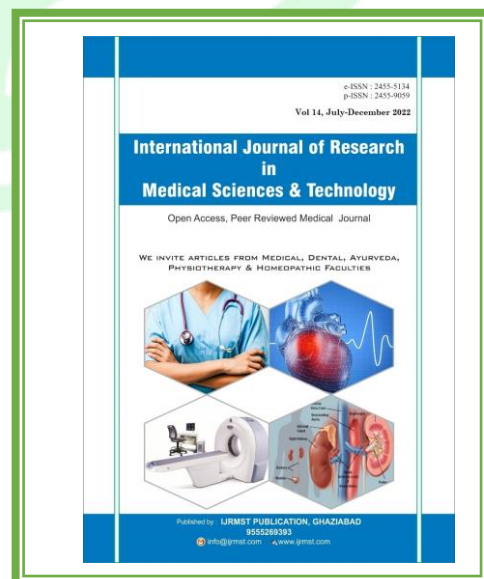
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ABSTRACT

The most common type of widely in usage group of medicines throughout our nation, as they are worldwide - and they are frequently consumed in an inconsequential manner. In this study, the use of antibiotics in the 245-bed Al-Furat Academic Medical Center, the reason for starting whether they are the antibiotics used make sense or not were investigated according to the method of point spread.

On February 8, 2022, Patients at our facility were assessed for antibiotic use using the point of privilege method. Patients under the age of 18 were not included in the investigation. Chi-square and Fisher's exact chi-square tests were used in the analytical statistics. 60 (27.2%) of the 221 hospitalized patients in Utilizing antibiotics in our hospital. Of these patients, 33 (54.4%) were in surgical departments, while 27 (45.6%) were in units that handled internal medicine. Antibiotics were used prophylactically in 36.5% of cases, definitely in 14.5%, and empirically in 49% of cases. In 36 patients (59.3%), the use of antibiotics was found to be reasonable, while in 24 patients, it was found to be irrational. (40.7%). when the status of counseling on infectious diseases an investigation; 23 Consultations with patients 37 Not one patient was contacted to an infectious disease specialist. It was noted that 98% of cases of Antibiotic use was unreasonable in people who had not been treated for infectious illnesses (p 0.0001). When compared to internal medicine units, where illogical antibiotic usage was significantly lower (n = 4, 16%), surgical units (n = 20, 61%) had much higher rates (p 0.0001). Cephalosporin's, beta-lactam/beta-lactamase inhibitors, quinolones, and carbapenems were the most often utilized antibiotics when taken as monotherapy, in that order. Carbapenems and piperacillin-tazobactam were the two medications most frequently utilized in pathogen-directed therapy.

Consultation with an infectious disease specialist was a crucial factor in the wise use of antibiotics. Reviewing preventive measures, enhancing compliance with recommendations, and increasing the frequency of training provided by a hospital antibiotic use committee are significant when high rates of irrational antibiotic use in surgical units are taken into consideration.

Keywords: *medication, point spread, rational use, Iraqi hospitals*

INTRODUCTION

The most common type of widely usage group of medicines throughout our nation as well as throughout the world, antibiotics are often prescribed and/or taken out of rational use. Antibiotics are started in a third of patients in the hospital, and this decision is often made out of habit rather than according to the necessary criteria.

Unnecessary or incorrect using antibiotics results in negative consequences like increased resistance of bacteria, treatment failure, increased frequency of side effects and cost of treatment.

With this investigation, we find out the rate of using antibiotics, the reason for starting antibiotics, the suitability of the antibiotics used, and the comparison of surgical and inpatient clinics in terms of inappropriate use of antibiotics in Al-Furat Hospital in Baghdad that has 280 beds with Al-Furat University Hospital.

MATERIALS AND METHODS

Patients hospitalized in Al-Furat Hospital on February 8, 2020 were evaluated in terms of antibiotic use using the point prevalence method. The use of antibiotics was reasonable when evaluated by an Infectious Diseases and Clinical Microbiology faculty member and two research assistant doctors according to previously published guidelines

for rational antibiotic use. Pediatric individuals not studied and incorporated.

Demographic characteristics of the patients, which department they were hospitalized, antibiotics used, doses and durations, reasons for use were recorded in the prepared form. Inappropriate use of antibiotics was evaluated considering lack of indication, ineffective antibiotic use, inappropriate dosage and a dosage gap, inappropriate long-term and/or transient combinations treatment, use of broad-spectrum antibiotics than necessary, and prolonged prophylaxis.

SPSS 15.0 package program a statistical analysis was performed. Comparing categorical variables was done using the chi-square and Fisher's exact chi-square tests. P values of 0.05 or above were regarded as statistically significant.

RESULTS

It was determined that 60 (27.2%) of 221 patients hospitalized in our hospital on the study day used antibiotics. Patients using antibiotics 32 (52.7%) were male and 29 (47.3%) were female, with a mean age of 52.19±21.14. It was observed that 33 (54.4%), 27 (45.6%) were admitted to internal facilities, and the remaining patients were treated in surgical units. In these patients, 49% of the antibiotics were started empirically, 14.5% for the causative agent,

and 36.5% as prophylactic. It was determined that antibiotics were started correctly and in place in one hundred and forty-three patients (59.3%), and irrational. In 98 cases, antibiotic usage was discovered. (40.7%). According to findings, the highest rate of appropriate antibiotic use was in agent-directed treatment, while the lowest rate was in prophylactic use (Table 1). When the consultation rates of infectious diseases were evaluated, it was observed that consultation was requested in 23 (38%) cases, and consultation was not requested in 37 (62%) cases.

It was observed that 98% (n=24) of the cases were patients for whom consultation was not requested (p<0.0001). In cases where consultation is not desired, empirical.

Table 1. Distribution of antibiotic use suitability according to the reasons for initiation [n (%)

	Proper use	Improper use
Empirical 29 (49)	24 (83.1)*	5 (16.9)
9 (14.5) for the factor	9 (100)*	0 (0)
Prophylactic 22 (36.5)	2 (11.4)	19 (88.6)*
Total 60 (100)	36 (59.3)	24 (40.7)
*p<0.05		

Table 2. Distribution of the reasons for antibiotic use in internal medicine and surgical sciences [n (%)].

Clinic	Empirical	For the agent	Prophylactic
Surgical sciences 33 (54.4)	9 (28.2)	3 (7.7)	21 (64.1)*
Internal sciences 27 (45.6)	20 (73.6)*	6 (22.8)	1 (3.6)
Total 60 (100)	29 (49)	9 (36.5)	22 (14.5)
*p<0.05			

(n=15, 40.7%) and prophylactic (n=22, 58.6%) treatments were found to be predominant, while agent-directed treatment (n=1, 0.7%) was found to be low (p<0.0001). In cases where consultation was requested, treatment for the agent was started in 8 (36.3%) cases. When evaluated in terms of rational antibiotic use, it was determined found erroneous antibiotic usage was much more prevalent in surgical units (n=20, 61%) compared to internal units (n=4, 16%) (p<0.0001). Antibiotics were started most frequently empirically (n=20, 73.6%) in internal units, and most frequently for prophylactic purposes (n=21, 64.1%) in surgical units (Table 2). Inappropriate use was not detected in the treatment initiated for the agent. While 166 of the patients were receiving single antibiotic treatment; It was observed that 15 of them took dual antimicrobials and 3 of them took three or more antimicrobials. The most commonly

used antibiotics cephalosporins in monotherapy, quinolones, carbapenems, and inhibitors of beta-lactam/beta-lactamases; It was observed that carbapenem and piperacillin-tazobactam antibiotics were started most frequently in the treatment of the agent.

ARGUMENT

Misuse of antibiotics, which one among the most popularly consumed drugs in the world and in our country, is a situation that threatens not only the health of the patient, but also the health of the whole society. Increasing resistance with wrong drug use affects individuals both horizontally and vertically. For this reason, every doctor who prescribes antibiotics should know for what purpose he gives this treatment. Rational use of antibiotics is defined as the use of the most appropriate drug that will meet the clinical needs of the patient, in the appropriate dose, in the appropriate route and for the appropriate duration. In a general approach,

antibiotics are used in the presence of proven infection for one of three basic elements: empirical or prophylactic. When starting antibiotics empirically, starting treatment by examining whether the patient has an infectious condition, whether the patient needs antibiotics, which microorganism is the most common causative agent in the diagnosis, and which antibiotic will be the most appropriate option will both reduce unnecessary antibiotic use and contribute to the use of appropriate antibiotics.

In various studies conducted in our country, the rate of using antibiotics in hospitalized patients was 16.6%-63.2% has been reported. Inappropriate use of antibiotics varies between 19% and 72.4%. Similarly, in our study, the rate of patients taking antibiotics was 27.2% and inappropriate use was 40.7%, which is consistent with the literature (Table 3). In various studies conducted abroad, the rate of antibiotic use in hospitalized patients ranged from 40.9% to 67.4%. Inappropriate usage rates ranged from 27.5% to 30.8%.

Table 3. Results of various point prevalence studies [n (%)].

	Number of patients	Number of patients taking antibiotics	Number of inappropriate uses	Most common cause of improper use
Ceyhan et al.	1302	711 (54.6)	332 (46.7)	Wrong indication, drug selection and dosage
Ertugrul et al.	70	38 (54.3)	26 (68)	prophylaxis
Yilmaz et al.	422	153 (36.2)	84 (54.3)	prophylaxis
Sacar et al.	545	299 (55)	57 (19)	prophylaxis
Robert et al.	3964	1619 (40.9)	446 (27.5)	Unnecessary long use
Thu et al.	7571	5104 (67.4)	1573 (30.8)	prophylaxis
our work	221	60 (27.2)	24 (40.7)	prophylaxis

In Iraq, widespread use of antibiotics began, and it was restricted by the antibiotic prescribing rules issued by the Iraqi Ministry of Health. However, it is known that there is still partial resistance to this practice despite the following years. The inappropriate use of antibiotics in outpatient settings also continues. A review of medical education, continuing medical education and in-service training on this topic will contribute to raising awareness. In our study, it was determined that 98% of patients with irrational use of antibiotics were not consulted with an infectious disease specialist. Emphasizing the need for support from an infectious disease specialist when necessary in training meetings to be held with other branches will also contribute to reducing unnecessary use of antibiotics.

As in other studies conducted in the world and in our country, the inappropriate use of antibiotics was found to be significantly higher in the surgical branches compared to the internal branches in our study. The fact that the reason for mostly (88.6%) improper use of improper prevention practices indicates that old habits are still effective in surgical branches. Another important point is proper sampling of Gram stain, and culture of an antibiotic from the patient's infection focus before

starting antibiotics. Antibiotic inappropriateness rates according to culture results started out very low compared to prophylactic and experimental antibiotics. It did not find inappropriate use of antibiotics in patients who started treatment with microbiological data. Similarly, in our study, the correct use of antibiotics was found in all patients who started treatment.

In conclusion, this study is the first to evaluate the use of antibiotics in hospitals in Iraq, and it has made important contributions to us regarding inappropriate use and errors made in this regard. In our study, errors in surgical prophylaxis, empirical treatment as the most common reason for starting antibiotics, and inappropriate use of antibiotics above acceptable levels are all important indications that we need educational studies. Infectious disease counseling appears to be a very important factor for the rational use of antibiotics. It is necessary to review prevention approaches and increase compliance with guidelines, and hospital antibiotic use committees should continue to increase their training.

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