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ANALYSIS AND EVALUATION OF CLINICAL PHARMACIST'S SUGGESTIONS AT AL-FAYAHA TEACHING HOSPITAL

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ABSTRACT

Objective: Analysis and evaluation of clinical pharmacist's suggestions according to the rate of their acceptance by the treating physicians (Prospective assessment) and subsequently benefit of clinical pharmacist involvement in integrated health care team during inpatients care. **Background:** All patients admitted to the hospital are subject to clinical pharmacy services. Where the clinical pharmacist as part of his/her daily routine works follow-up patients' treatments and documenting drug interactions and writing pharmaceutical suggestions about the treatments spent. These suggestions are presented to the doctor for acceptance or rejection as important in influencing the patient's condition. These pharmacological suggestions are of great importance in maximizing the treatment of patients and controlling the problems in treatment. Therefore, it is necessary to analyze these suggestions and the presentation of quality and importance and the rate of acceptance by doctors treating. This enhances the role of clinical pharmacist as a vital part of the patient's therapeutic care. **Method:** It was a prospective, observational and interventional study carried over a period of 2 months. This study included random sample of 100 patients (41 male and 59 female) admitted in three wards at Al-Fayha teaching hospital at the period from 1 January to 1 March 2018 with different disease conditions. All patients who have clinical pharmacist's suggestions in the clinical pharmacist's sheet. Also all the patients included having more than 5 drugs in their prescribed treatment. Total number of drugs for all patients' selected 650 drugs, including 270 drugs (41.5% of total drugs) presented to clinical pharmacist's suggestions. The quality of clinical pharmacist's suggestions was analyzed and evaluated according to the rate of acceptance (accepted, not accepted and neglected) by the treating physicians. The drugs were also analyzed and the clinical pharmacist's suggestions were analyzed. **Results:** From 100 patients(41 male and 59 female) who have 650 drugs in

their treatment, 270 drugs with 270 clinical pharmacist suggestions identified. From these 270 clinical pharmacist suggestions 186(68%) accepted, 43(15%) not accepted and 41(15%) neglected by the treating physicians. The acceptance rate of clinical pharmacist suggestions was found to be high, the majority of these suggestions categorized with their acceptance rate as follow: 28(10%) management of dilutions(25(89%) accepted), 22(8%) dose adjustment(13(59%) accepted), 92(34%) management of drug-drug interactions(60(65%) accepted), 54(20%) treatment substitution(29(53%) accepted), 11(4%) treatment discontinuation(2(18%) accepted), 42(15%)monitoring(36(85%) accepted) and 23(8%) others(23(100%) accepted). As mentioned above 270 drugs affected by clinical pharmacist suggestions includes: 17 statins, 44 antibiotics,14 diuretics, 15 antiplatelet,11 anticoagulants, 21 fluids and electrolytes, 14 Proton pump inhibitors(PPI), 11 tramadol, 15 metoclopramide, 17 beta-blockers, 30 non-steroidal anti-inflammatory drugs(NSAID),12 angiotensin receptor blockers(ARB) and 49 others. **Conclusions:** The role of the clinical pharmacist in the hospitals has shifted from logistic and routine role in delivering treatment to the interactive role and clinical participation on the basis of scientific and proactive procedures in cooperation with the doctors to deliver the best therapeutic quality to the patient free from the problems of the medication led to wide acceptance of clinical pharmacist's suggestions and reliance. Physicians became believe that the results of the prescribed treatment are improved under the supervision of the clinical pharmacist. The pharmacist's widely accepted clinical suggestions from doctors have beneficial outcomes for patients and health institutions. Therefore, this study can reflect the effectiveness of the clinical pharmacist as one of the basic units of the medical staff that provides therapeutic services to patients. This type of studies can be used to assess the effectiveness of clinical pharmacists in health institutions.

INTRODUCTION

Clinical pharmacy supplements developed in the world over the last few decades.[1] There is no consensual definition of clinical pharmacy since recent studies indicate that he/she is the co-pharmacist of the doctor in his/her rounds, which contributes to the acceptance or discontinuation of treatment to avoid adverse effects and improve treatment results.[1,3]

Previous studies have shown that the clinical pharmacist has an important role in identifying, solving and avoiding the problems of medicines delivered to patients through clinical interventions and recommendations for treating physicians to solve these problems, which

positively affect the health and economic outcomes, improve the quality of life and decrease morbidity and mortality.[4,7]

The Supreme Scientific Committee of the Pharmacy confirms that the clinical pharmacist is an essential element for the integration of the medical staff.[8]

Training of clinical pharmacists has a clear effect on the economic and therapeutic reality of the patient by avoiding the negative results and excessive use of multiple drugs for patients.[9]

All patients admitted to the hospital are subject to clinical pharmacy services. Where the clinical pharmacist as part of his/her daily routine works follow-up patients' treatments and documenting drug interactions and writing pharmaceutical suggestions about the treatments spent.

The objective of this study is to analysis and evaluation of clinical pharmacist's suggestions according to the rate of their acceptance by the treating physicians (Prospective assessment) and subsequently benefit of clinical pharmacist involvement in integrated health care team during inpatients care.

METHOD

It was a prospective, observational and interventional study carried over a period of 2 months. This study included random sample of 100 patients (41 male and 59 female) figure1 with different ages figure2, admitted in three wards at Al-Fayha teaching hospital at the period from 1 January to 1 March 2018 with different disease conditions. All patients who have clinical pharmacist's suggestions in the clinical pharmacist's sheet. Also all the patients included having more than 5 drugs in their prescribed treatment. Total number of drugs for all patients' selected 650 drugs, including 270 drugs (41.5% of total drugs) presented to clinical pharmacist's suggestions. The quality of clinical pharmacist's suggestions was analyzed and evaluated according to the rate of acceptance (accepted, not accepted and neglected) by the treating physicians.

The drugs were also analyzed and the clinical pharmacist's suggestions were analyzed.

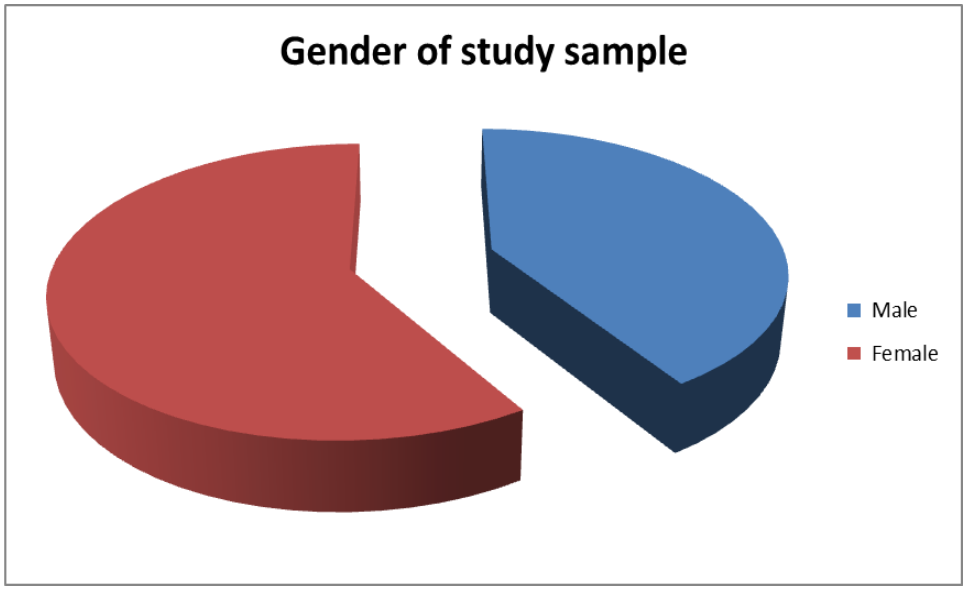

Figure 1: Gender of study sample.

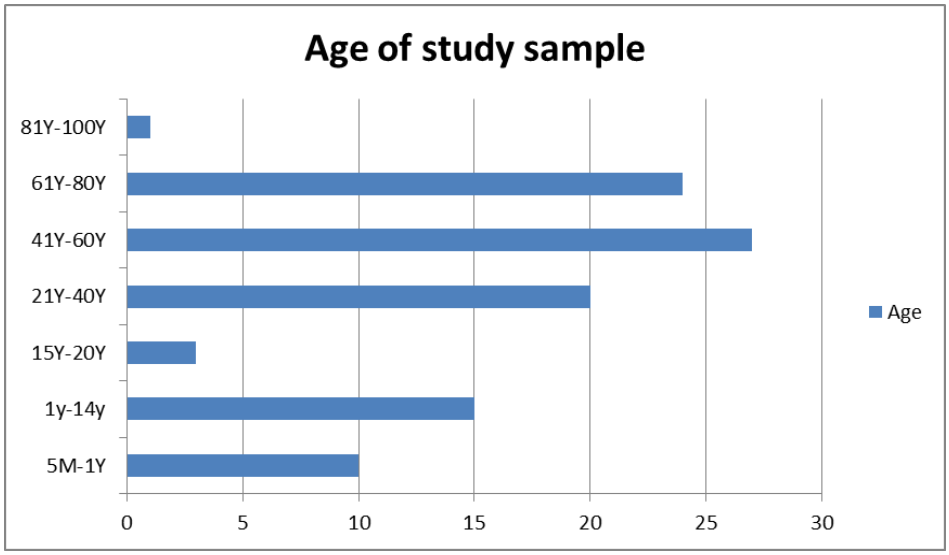

Figure 2: Age of study sample.

RESULTS

From 100 patients (41 male and 59 female) who have 650 drugs in their treatment, 270 drugs with 270 clinical pharmacist suggestions identified. From these 270 clinical pharmacist suggestions 186(68%) accepted, 43(15%) not accepted and 41(15%) neglected by the treating physicians (table 1). The acceptance rate of clinical pharmacist suggestions was found to be high.

The majority of these suggestions categorized(figure3) with their acceptance rate (figure 4) as follow: 28(10%)management of dilutions(25(89%)accepted), 22(8%)dose

adjustment(13(59%)accepted), 92(34%)management of drug-drug interactions(60(65%) accepted), 54(20%)treatment substitution(29(53%)accepted), 11(4%)treatment discontinuation (2(18%) accepted),42(15%) monitoring(36(85%)accepted) and 23(8%) others (23(100%)accepted).

Table 1: Categories of Clinical pharmacist suggestions and acceptance rate.

Categories of Clinical pharmacist suggestions	Total number of each Category (%)	Physicians acceptance		
		Accepted (%)	Not accepted (%)	Neglected (%)
Management of dilutions	28(10%)	25(89%)		3(10.7%)
Dose adjustment	22(8%)	13(59%)	3(13%)	6(27%)
Management of adverse drug reactions	8(2%)	8(100%)		
Management of drug-drug interactions	92(34%)	60(65%)	11(11%)	21(22%)
Treatment substitution	54(20%)	29(53%)	22(40%)	3(5%)
Treatment discontinuation	11(4%)	2(18%)	7(63%)	2(18%)
Interval adjustment	2(0.74%)	2(100%)		
Management of drug stability	3(1.1%)	3(100%)		
Management of food-drug interactions	1(0.37%)	1(100%)		
Management of treatment duration	4(1.4%)	4(100%)		
Management of drug infusion duration	1(0.37%)	1(100%)		
Adequacy of antimicrobial protocol	2(0.74%)	2(100%)		
Monitoring	42(15%)	36(85%)		6(14%)
	Total=270	**Total=186(68%)**	**Total=43(15%)**	**Total=41(15%)**

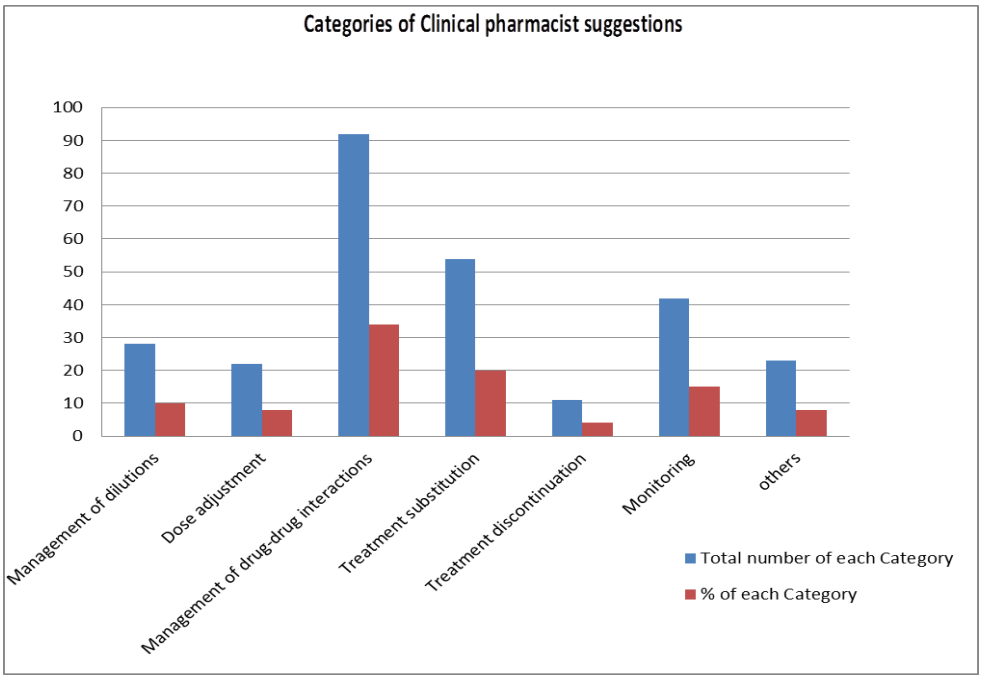

Figure 3: Categories of Clinical pharmacist suggestions.

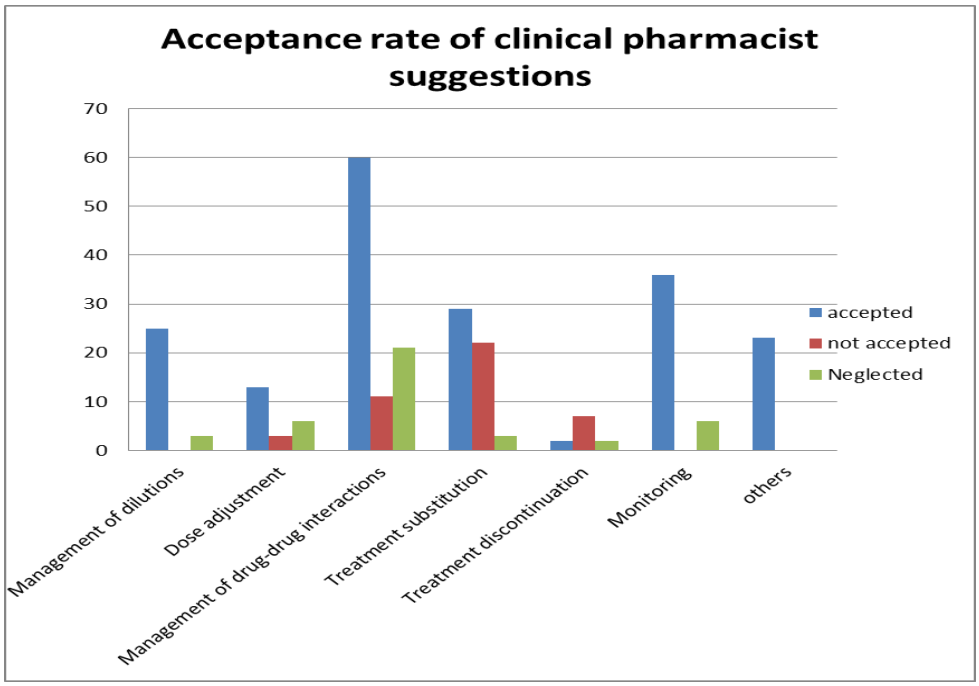

Figure 4: The acceptance rate of clinical pharmacist suggestions.

270 drugs affected by clinical pharmacist suggestions includes: 17 statins, 44 antibiotics,14 diuretics, 15 antiplatelet,11 anticoagulants, 21 fluids and electrolytes, 14 Proton pump inhibitors(PPI), 11 tramadol, 15 metoclopramide, 17 beta-blockers,30 non-steroidal anti-inflammatory drugs(NSAID),12 angiotensin receptor blockers(ARB) and 49 others(Table 2),(Figure5).

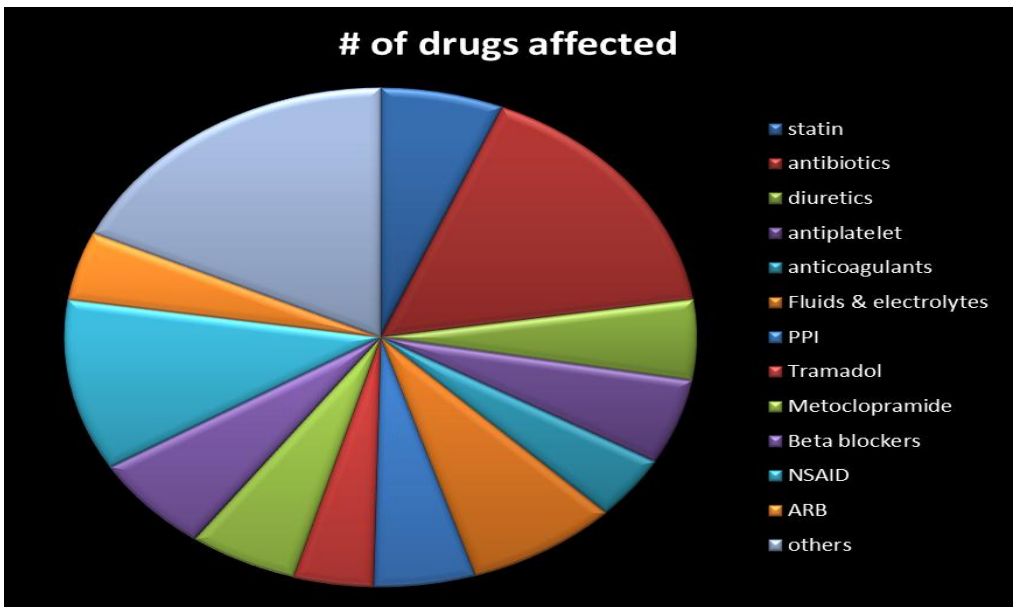

Figure 5: # of drugs affected by clinical pharmacists suggestions.

Table 2: # of drugs affected by clinical pharmacists suggestions.

drugs	number
statin	17
antibiotics	44
diuretics	14
antiplatelet	15
anticoagulants	11
Fluids & electrolytes	21
PPI	14
H2-blockers	5
steroids	3
Aminophylline	5
Valium	2
Tramadol	11
Metoclopramide	15
Insulin	2
Pethidine	1
Beta blockers	17
ACEI	5
Thyroxin	1
NSAID	30
ARB	12
Antiepileptic	5
Antiviral	3
salbutamol	6
Montelukast	1
Amiodaron	1
Digoxin	2
Antifungal	2
Anti-diabetic drugs	5
Total=	270

DISCUSSION

There are many studies that confirm that the review of the treatment given to patients by the clinical pharmacists has contributed to improving the quality of drug use by detecting and solving drug errors.[10,12] This also has an impact on reducing health expenditure.[13]

This study supports many studies in different countries that have been concerned with the recommendations of clinical pharmacists and their importance in diagnosing and solving drug problems through cooperation between the clinical pharmacist and the treating physician.[14,18]

This study may be the first in Iraq to evaluate the clinical pharmacist's suggestions based on their acceptance and work by the treating physicians.

A random sample of 100 patients in three different medical wards (medicine, Surgery and Pediatrics) was selected at Al-Fayhaa Teaching Hospital suffering from various diseases not limited to specific patients as in previous studies.[19,27]

All patients who have clinical pharmacist's suggestions in the clinical pharmacist's sheet. Also all the patients included having more than 5 drugs in their prescribed treatment. Total number of drugs for all patients' selected 650 drugs, including 270 drugs (41.5% of total drugs) presented to clinical pharmacist's suggestions compare to previous study.[23]

The majority of clinical pharmacists suggestions categorized(figure3) with their acceptance rate (figure 4) as follow: 28(10%)management of dilutions(25(89%) accepted), 22(8%) dose adjustment(13(59%) accepted), 92(34%)management of drug-drug interactions(60(65%) accepted), 54(20%)treatment substitution(29(53%)accepted), 11(4%) treatment discontinuation(2(18%) accepted), 42(15%)monitoring(36(85%)accepted) and 23(8%) others(23(100%)accepted).

From 100 patients (41 male and 59 female) who have 650 drugs in their treatment, 270 drugs with 270 clinical pharmacist suggestions identified. From these 270 clinical pharmacist suggestions 186(68%) accepted, 43(15%) not accepted and 41(15%) neglected by the treating physicians (table 1). The acceptance rate of clinical pharmacist suggestions was found to be high compare to previous study.[28],[29],[30]

The reasons for not accepting some suggestions of clinical pharmacists are:-
1- Treatment may be superior to potential risks in some unstable situations.
2- The clinical pharmacist's recommendation was not convincing to the doctor. For example, the toxicity symptoms were not shown to the patient.
3- Some drugs included in clinical pharmacists' proposals are taken from a doctor other than the physician who cannot change them.

The most common suggestion by clinical pharmacists is 92(34%)management of drug-drug interactions(60(65%) accepted by physicians), this is similar to Simioni *etal* (1996) and Stemer *etal* (2012), this patients side of many drug interactions have negative results on the quality of treatment and patient improvement.

The second suggestion made by clinical pharmacists is 54(20%)treatment substitution(29(53%)accepted by physicians), most of this substitution in treatment occurred

as a result of the appearance of side effects or lack of treatment in the hospital or the result of drug interactions.

There are 270 treatments affected by the suggestions of clinical pharmacists, most of which are antibiotics 44, because it is the most common treatments followed by PPI, which contains a lot of drug interactions.

CONCLUSION AND RECOMMENDATION

The role of the clinical pharmacist in the hospitals has shifted from logistic and routine role in delivering treatment to the interactive role and clinical participation on the basis of scientific and proactive procedures in cooperation with the doctors to deliver the best therapeutic quality to the patient free from the problems of the medication led to wide acceptance of clinical pharmacist's suggestions and reliance. Physicians became believe that the results of the prescribed treatment are improved under the supervision of the clinical pharmacist. The pharmacist's widely accepted clinical suggestions from doctors have beneficial outcomes for patients and health institutions. Therefore, this study can reflect the effectiveness of the clinical pharmacist as one of the basic units of the medical staff that provides therapeutic services to patients. This type of studies can be used to assess the effectiveness of clinical pharmacists in health institutions.

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