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Clinical pharmacist's responsibility for the patients safety in drug information centers at Al-Basra District – Iraq

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***Abstract*---**Drug information center (DIC) is an academy that provides objective, free and updated information on drugs and their use, and communicates to the different categories of users for better understanding and benefit of patients. Therefore, DIS belongs to an organization that provides information services about medications. The overall aim of the DIC is to promote rational medications use through scientific, objective, updated, free and evaluated information. The purpose of this research was to assess the use of drug information centers by health care professionals to improve medication safety. A data of six months were collected from November-2021 until May- 2022. The number of questions during this period was counted and all these questions were analyzed. 24% of these questions were made by the, 40%made by the pharmacist, 13% were made by the nurse and 19% were made by the patients. A total number of requests were responded during the 6 months period are

298 requests. This explains the importance of DIC in answering questions and providing adequate information about medicines.

***Keywords*---**clinical pharmacist's responsibility, patients safety, drug information centers.

Introduction

In1962, at Kentucky Medical Centre University, first drug information center (DIC) was started, which intended to be used as source of unbiased, accurate, comprehensive drug information to the healthcare team followed by the United Kingdom and Australia where the first DIC were established at Royal Melbourne hospital in 1968, and at the London hospital in 1969 respectively [(1)]. The first time when WHO warned about the use of drug that not original was at the medical scientific conference of experts about the rational use of the drug which held in Nairobi, in 1985. WHO had initiated a network of technically efficient mangers within national authorization for drug regulation for ensuring the best information published and exchanged. [(2)(3)(4)(5)(6)(7)]

The Pan American Health Organization (PAHO) describes Drug Information Centers (DIC) as process units that provide scientific information about medications as social services for patients and health care providers in an objective manner DIC have database and sources of drug information and well-trained people that generate free information relevant to the requests that are made or any need identified [(8)] Another definition of DIC is an academy that provides objective, free and updated information on drugs and their use, and communicates to the different categories of users for better understanding and benefit of patients [(9)]. Therefore, DIC belongs to an organization that provides information services about medications. The overall aim of the DIC is to provide the best information about drug use, intervention problems, Provide best and safe patients care in hospitals, Re-correction the mistakes. [(10)]

The role of clinical pharmacist in Drug Information Services (DIC) is to Contact information or data about the services available, responds to questions accordingly to the degree of urgency, make a documented system for recording and save details of the questions and answers, records the questions& their response references, save drug information service documents, ensures the service is evaluated at regular intervals, look for regular feedback from users to ensure that the drug information service has been provided in a good and clear manner and satisfactory manner and Perform quality assurance of the information which has provided for improved quality of service. [(11)]

There are many types of DIC, including the following:

1. hospital based DIC : which doing many activities like answering the questions in-house call, help in reading of prescription, assist in the drug use and participate in evaluation , organized side effect and drug-drug interactions report , published medical posters and brochures, assist in Pharmacy and Therapeutic committee (P and T) .

2. Industry based drug information center .
3. Community based drug information center. [12]

All these types have the main objectives of DIC like providing the organized database of the specialized information about therapeutics and medicines in order to meet drug information that needed by practitioners, educating the pharmacy students in order to turn as effective providers of the medicines information and promoting the patient care by rational use of the medicines. [13][14][15][16]

The main requirements for Establishing of DIC are:

1. Organization and Space: various parameters are used while determining requirements of organization and space. These factors include: the Types of activities offered, Budget, Space available, Resources and Staff.
2. Resource: can be classified according to the era, in which they emerged. Resources can be categorized into Primary (reports of clinical drug trials - journals - pharmacological report), Secondary (medical indexing and national pharmaceutical abstracting) and Tertiary (general reference books-textbook)
3. Human resources: number of persons needed depend on range of activities presented and hours of service.
4. Policy and Procedures: it called (P and P): the mean of Policy is (framework) general outlines, and the mean of Procedures is (how to) detailed outlines. Both of them help in smoothing of the operation of DIC. P & P development depends on the type of DIC and the scope of service .It subdivided into professional and Administrative guides. [17][18][19][20]

Aim

The aim of this study is to evaluate the role of the drug information centers in Basra's main hospitals and subsequently the clinical Pharmacist who manage these centers in Patients Safety and in reducing medications related errors.

Methodology

A retrospective study was made in the eight major hospitals in Basra – Iraq to evaluate the impact of drug information center on patient safety and improving health care services. The study was approved ethically by the Ministry Of Health-Clinical Pharmacy department. A data of six months were collected from November-2021 till May- 2022. The inclusion criteria were all the requests made at this period and the requests out of this time line were excluded. The number of questions during this period was counted and all these questions were analyzed, the mode of request whether it was by direct access, during round or by phone , the type of request which include the numbers of adverse drug reaction, dosage administration, drug availability and alternatives, drug interaction, pregnancy and lactation, product identification, stability and compatibility, therapeutic use and irrational use and who made the request a physician, pharmacist, nurse, patient or others . Also all the activities made by the center were collected and analyzed and a relation between the requests and the activities were evaluated.

All these data were statistically analyzed, a descriptive analysis using numbers and percentages were used to describe the data. [21]

Results

A total of 298 questions were collected during six months period. 24% of these questions were made by the, 40%made by the pharmacist, 13% were made by the nurse and 19% were made by the patients. Figure 1 shows the number of questions made by each category

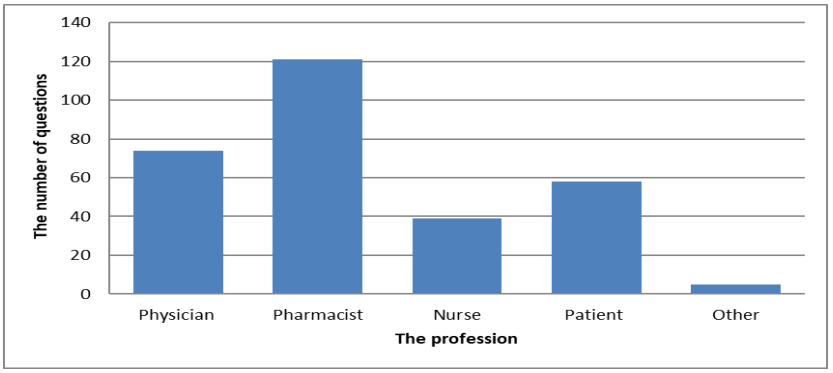

Figure 1: The number of questions asked by physician, pharmacist, nurse, patient and others

Regarding the mode of request, 58% of the requests were by direct access, 27% during round and 13% were by phone. Figure 2. shows the number of questions by each mode

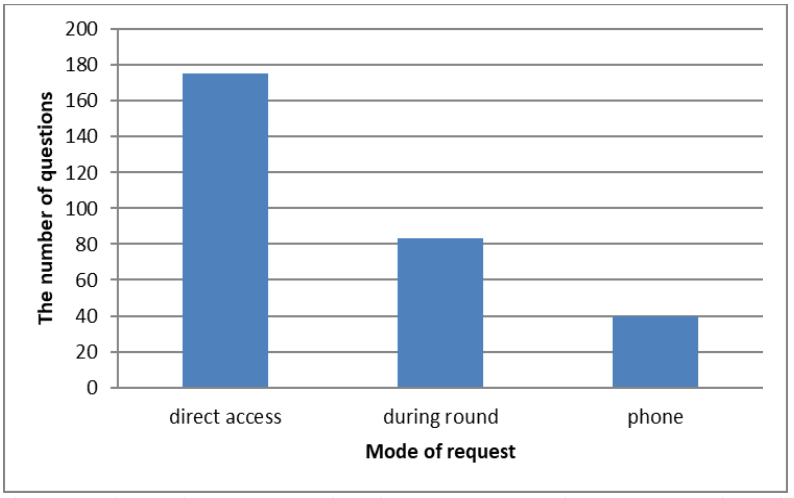

Figure 2: The number of questions by direct access, during round and by phone.

And by dividing the request depending on their type, the higher percent were for dosage administration, general information and the therapeutic use (27%, 17% and 11% subsequently). Figure 3. shows the number of questions for each type.

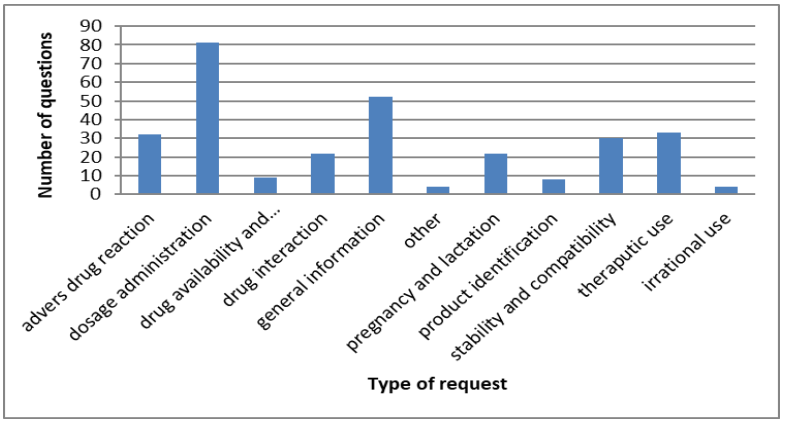

Figure3: The number of requests for each type which include (the numbers of adverse drug reaction, dosage administration, drug availability and alternatives, drug interaction, pregnancy and lactation, product identification, stability and compatibility, therapeutic use and irrational use).

The total number of activities made by the center was 130 activities including 68 educational posters, 61 lectures and 9 workshops

Discussion

Drugs are medicinally active substances that are used to prevent, treat, or diagnose diseases. Obtaining the correct information for the safe and proper use of these substances is difficult, and may cause in medication-related harms or errors, and also poor health outcomes and increased risk of morbidity and mortality among patients. So, this research allowed providing overviews about DIC and role of the clinical pharmacists in it. The centers recorded each question received; these records contained the date, the applicant's name, a contact number, the question asked, the answer given, the response time, references used and the name of the pharmacist who gave the information. Most questions were answered in five minutes, only less than 10% required more than 1 hour to be answered. Regarding the references used to answer drug information requests in this study was (i.e. Lexicomp, Medscape, BNF).

A total number of requests were responded during the 6 months period are 298 requests. This explains the importance of DIC in answering questions and providing adequate information about medicines. These requests by physician, pharmacist, nurse, patient, phone and other. And there are many modes of request by direct access, during round or by phone. These requests also include many types for example: dosage administration, general information, therapeutic use, adverse drug reaction, stability and compatibility, drug interaction, pregnancy and lactation, drug availability and alternative, product identification, irrational use, phone, and other.

The most of drug information request were received mainly from pharmacist may ask about therapeutic use, irrational use, adverse drug reaction, pregnancy and lactation. These requests mainly by direct access, mainly about how drug given to patient (dosage administration). Data collected also showed some activities such

as lectures, posters and workshops. There are some activities performed according to the questions that received, for example: in November/2021 Al-fayhaa hospital DIC received question about cough and cough during pregnancy as action they performed presentation about cough. In the same month Al-mawanny hospital DIC received question about shohl's solution, DIC activity was doing grand tour about this solution… In December/2021 Al-mawanny hospital DIC had question about dilution of Apresoline ampoule, the clinical pharmacist do grand tour about this question… In January/2022 Al-fayhaa hospital received question about teratogenicity of ACEI, so the clinical pharmacist in DIC did presentation about this subject. In same month concomitantly with increasing Covid 19 cases and to aware pharmacist and other health care provider in Al-Basra teaching hospital DIC made a presentation and poster about Mucormycosis and show how to dilute Remdesivir. In February/2022 Al-Basra teaching hospital DIC received question about use of Cordoned in pregnancy and remdesivir during breastfeeding as activities they do poster to answer these questions. In April/2022 pediatric specialized hospital at the period of increasing chicken pox cases they do presentation about Chicken pox treating. In same month Al-shafaa hospital DIC had a question about sudden stop of dexamethasone use, as activity they did presentation about corticosteroid.

Conclusion

The drug information center has a valuable role in providing safe and scientific information about medications by answering questions or by making workshops or presentations related to the most frequently questions asked subsequently has a direct role in improving health care services and patient safety.

Recommendation

We recommend making annual survey discussing satisfaction about the center; this method will increase DIC productivity and avoid negative points. We also recommend doing more prolonged studies in the future to evaluate the DIC role in patient safety.

Ethical approval

The study was approved ethically by the Ministry Of Health- Clinical Pharmacy department.

Conflicts of interest: The authors declare that they have no conflicts of interest.

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