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Assessment and Evaluation of Drug Information Needs of Physicians Treating Type-2 Diabetes Mellitus with Co-Existing Hypertension in a Tertiary Care Hospital.

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Research Article

ABSTRACT

Diabetes mellitus with hypertension requires lifelong treatment and needs care while choosing drugs. The provision of accurate and timely drug information to health care professionals in treating such patients is an important mechanism to promote safe and effective drug therapy. This study was conducted to analyze the patient specific drug information needs of physicians treating type-2 diabetes mellitus with co-existing hypertension.A prospective, observational study in medicine department at Victoria hospital for a period of one year 6 months. The relevant data regarding patient specific queries of physicians on drug information were collected by joining physicians in Medicine outpatient and ward rounds and were analyzed. Descriptive statistical analysis has been carried out in the present study. Out of 160 patients, physicians had queries on 35% of patients. The total number of queries were 56, out of which 48(85.7%) were active and 8(14.3%) were passive. Queries on antidiabetic drug class were maximum (28.6%) followed by antihypertensives (25%). Queries on adverse drug reactions were leading (32%). Tertiary sources (53.5%) were the most commonly used drug information sources. Answers to the drug information queries were most often needed immediately (44.6%) and the mode of reply was verbal (44.6%) in most cases. Upon overall analysis it was found that, physicians are in need of drug information service during patient care of majority of patients. Most of the queries of physicians on drug information can be answered by referring to authentic drug information sources. Accompanying physicians during rounds and collecting queries is a useful method to identify and study queries arriving during patient care.

INTRODUCTION

The provision of accurate and timely drug information to health care professionals is an important mechanism to promote safe and effective drug therapy. Most developing countries suffer from lack of adequate information and this could be due to decreased availability of current literature as well as poor dissemination of what little information is available [1].

The term drug information was coined in early sixties and the first drug information center was opened at the University of Kentucky Medical Center [2].

Drug Information is the provision of written and / or verbal information or advice about drugs and drug therapy in response to a request from other healthcare providers, organizations, committees, patients or members of the public [3].

In the past, the number of drugs available was less and thus, the need for drug information was limited. But the scenario has come a long way with new modes of therapy and vast number of drug products being available. It is not humanly possible to remember such vast information on drugs. There has also been a great

explosion in the number of biomedical journals published each year. Hence it is very important to retrieve specific unbiased information.

In India, the concept of rational drug use is yet a long way to go. Lack of time are some of factors that makes the physicians unable to update their knowledge about drugs which have resulted in an increasing demand for independent and unbiased information about drugs for better patient care.

Objectives

- To delineate and analyze the patient specific drug information needs of physicians
- Treating type-2 diabetes mellitus with co-existing hypertension.

MATERIALS AND METHODS

The study was carried out in Victoria Hospital. It is a prospective, observational study conducted in outpatient and inpatient ward of the Medicine Department for a period of one year 6 months(Jan 2010- Jun 2011). All patients diagnosed as type-2 diabetes mellitus with coexisting hypertension by physician were included in the study. Permission from Institutional Ethical committee was obtained to conduct the study.

To delineate drug information needs, the data on drug information queries of physicians who treated patients with type-2 diabetes mellitus with coexisting hypertension were collected by accompanying them in the outpatient and during rounds in the Medicine wards. Patient-specific queries on drug information from physicians which were asked directly (active) to the investigator or perceived as need by the investigator (passive) during patient care were collected. Those queries discussed for medical students and residents ('teaching questions') were not included in the study. Also, total number of patients with queries and number of drugs with queries were noted every day. Once the authentic information was obtained, the treating physicians were informed accordingly by the investigator as early as possible. The time to find out the answer to a query and number of searches to find the authentic answer to each query were also noted.

Statistical analysis

Descriptive statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean ± SD (Min-Max) and results on categorical measurements are presented in Number (%).

Statistical software

The Statistical software namely SPSS 15.0, and R environment ver.2.11.1 were used for the analysis of the data and Microsoft word and Excel have been used to generate tables etc.

RESULTS

Out of 160 patients studied, physicians had drug information queries on 56 (35%) patients. Questions that were asked directly to the investigator (active) were 48 (85.7%) and queries. Perceived by investigator during patient care (passive) were 8 (14.3%) as shown in table-1. Drug class with maximum number of queries was antidiabetic drug class (28.6%), followed by Anti-hypertensive (25%), miscellaneous drug group (17.9%), Hypolipidemics and Antibiotics (7.1% each), Antiplatelet (5.4%), Vitamins and H2 blockers / PPI (3.6% each) and Nootropics (1.8%) as shown in table-2. Table - 3 shows the queries categorized as adverse effect of the drugs (32.1%), dosage queries (19.6%), queries on mechanism of action (17.9%), use/ indications, contraindications and advantages of drugs (7.1% each), availability of new drugs, different preparations and actions of drugs (3.6% each), drug interactions and pharmacokinetic queries (1.8% each). Out of 56 queries answered, primary sources were used to answer 10(17.8%) questions, secondary sources were used to answer 16(28.5%) questions, and tertiary sources were used to answer 30 (53.5%) questions as shown in table-6. Answers to the drug information queries were most often needed immediately (44.6%) and the mode of reply was verbal (44.6%) in most cases. A printed literature was provided for 23.2% of the queries where the answers were from relevant journals.

Table 1: Type of drug information queries

Drug information queries	Number of patients (n=56)	%
Active queries	48	85.7
Passive queries	8	14.3

Table 2: Different drug classes with drug information queries

Drug class	Number of patients (n=56)	%
Nootropic	1	1.8
Antidiabetics	16	28.6
Antihypertensives	14	25.0
Hypolipidimic	4	7.1
Antiplatelet	3	5.4
Antibiotics	4	7.1
H2 blockers/PPI	2	3.6
Vitamins(Neutraceuticals)	2	3.6
Miscellaneous	10	17.9

Table 3: Different categories of drug information queries

Category	Number of patients (n=56)	%
Mechanism of action	10	17.9
Actions	2	3.6
Dosage	11	19.6
Adverse effect	18	32.1
Availability of new drugs, different preparations	2	3.6
Uses / Indications	4	7.1
Contra-indications	4	7.1
Advantages	4	7.1
Drug interactions	1	1.8
Pharmacokinetic queries	1	1.8

Table 4: Purpose of the query

Purpose of query	No of queries	Percentage
Better patient care	35	62.5
Upgrade knowledge	10	17.8
Academic / education purpose	11	19.6

Table 5: Time frame to reply

Time frame to reply	No of queries	Percentage
Immediately	25	44.6
2-4 hrs	13	23.2
Within one or 2 days	18	32.1

Table 6: Drug information sources used

Drug information source used	Number of times used	Percentage
Primary sources	10	17.8
Secondary sources	16	28.5
Tertiary sources	30	53.5

Table 7: Status of the enquirer

Status of the enquirer	No of queries	Percentage
Physicians	33	58.9
Post Graduate students	17	30.3
Others	6	10.7

Table 8: Mode of reply

Mode of reply	No of queries	Percentage
Verbal	25	44.6
Verbal and written	18	32.1
Printed literature	13	23.2

DISCUSSION

Out of 160 study population, the number of patients with queries on drug information was 56 (35%). This shows that there is an urgent need for drug information services during patient care.

It was noticed that drug class with maximum number of queries was antidiabetic drugs (28.6%) followed by antihypertensive drugs (25%). This could be because the study population included diabetic hypertensive patients and every patient was on one or the other antidiabetic and antihypertensive drug.

In this study, queries on ADR (32.1%) were predominant. These results closely match with the findings in a study done by Padmini Devi which showed that maximum queries were on ADR (31.3%) [4]. While the two previous studies, one conducted in Nepal, and the other in Calcutta have reported that the most commonly asked questions were on drug indications and drug therapy [5,6]. Our findings indicate that physicians give more importance to ADR and drug dosage during patient care in type-2 diabetes mellitus with hypertension.

In this study the most commonly used drug information source were tertiary sources (53.5%) compared to primary or secondary sources. This is because we were able to find most of the answers from authentic tertiary drug information sources like Martindale's Extra Pharmacopoeia, The complete drug reference. Previous study in a tertiary care teaching hospital by Manjula Devi also showed that tertiary sources were the most commonly used drug information source [7,8].

The kind of questions collected in doctor's drug information needs seem to depend on the methods used to collect them. This study proved that accompanying clinicians during rounds and collecting queries is a reliable as well as useful method to study the drug information needs of the physicians. Active as well as passive queries can be collected by this method.

Most of the queries were from Physicians (58.9%), this finding is similar to a study done by Nibu F(52%) [9]. Most of the queries required an immediate answer because it was for better patient care and hence the mode of reply was verbal, which was similar to a previous study by Beena George [10] and a study by Padma [11].

CONCLUSION

Physicians are in need of drug information service during patient care of a majority of patients.

Questions those were asked directly to the investigator (active) were 48 (85.7%) and that were perceived as such by the investigator (passive) were 8(14.3%) showing that even passive queries can arrive during patient care.

Predominance of queries on ADRs and drug interactions (31%) demonstrate concern among physicians treating diabetes mellitus with co-existing hypertension in this domain of patient care.

Most of the queries of physicians on drug information can be answered by referring to authentic drug information sources. Tertiary sources were the most commonly used drug information source (51%). Accompanying physicians during daily rounds and collecting queries is a useful method to identify and study the queries arriving during patient care.

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