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RESEARCH ARTICLE

Drug Interaction Awareness among Public Attending GMCH Ajman/UAE

Nehad M. Hamoudi[1]*, Noor Y. Al-Obaidi[2], Farman M. Khan[3]

[1]College of Pharmacy, Gulf Medical University, Ajman, UAE, P. O. Box 4184

[2] Research Assistant, Al Rawda Medical Center, Ajman, UAE, P. O. Box 45087

[3]College of Pharmacy, University of Sharjah, Sharjah, UAE, P.O. Box 27272

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ABSTRACT

This study is designed to assess peoples' knowledge towards drug interactions and their awareness towards the management and prevention of drug interaction in Ajman, UAE. A cross sectional study was conducted among subjects attending GMC hospital pharmacy/ GMCHRC [Gulf Medical College Hospital and Research Center], Ajman, UAE. Self-administered questionnaire was used as a tool for data collection. The questionnaire included the socio-demographic characteristics of the participants and ten questions for the assessment of participants' knowledge and awareness towards drug interactions and their management and prevention. Results showed that both male and female were significantly aware about drug interaction types $P<0.01$. There was a significant association between the finding and demographic variable such as age, and occupation. The poor knowledge response towards drug interaction types and poor awareness towards the management and prevention of drug interaction was recorded by participants with the age group above 40 years and participants without occupation. All participants were significantly recorded poor knowledge response towards the possible interaction of (OTC) and prescription medication with herbal remedies and supplements ($P<0.01$) and significant poor awareness ($P<0.01$) towards the management and prevention of drug interaction by visiting and purchasing all drug prescriptions from the same pharmacy. In conclusion, there is a need to improve the knowledge of elderly patients towards drug interaction types and the risk of polypharmacy and their awareness towards the management of drug interaction. Mass education program by health authorities is required for public in one side and health professional from the other side to control unwanted adverse drug reactions.

Keywords: Drug interactions, Knowledge, Awareness, Management and Preventions.

1. INTRODUCTION

Drug interactions have been associated with increased incidence of adverse events, hospitalizations, and death [1-4]. Almost half (49.5%) of the Food and Drug Administration (FDA) reports of deaths from adverse drug reactions and 61% of hospitalizations from adverse drug reactions were in people younger than 60 [5]. Elderly people were four times more likely to be hospitalized by the Adverse Drug Reactions (ADRs) related problems than non elderly [6]. It is found that 2.09% of all pediatric (children under the age of 19) hospitalizations were caused by ADRs and that 39% of these were life-threatening [7]. Studies concerning the causes of people going to hospital emergency rooms found that as many as 28% of all emergency department visits were drug-related, including a large proportion due to adverse drug reactions and inappropriate prescriptions. 70% of all drug-related visits were preventable [8]. The annual cost of these hospital admissions was estimated at 847 million US dollars (2002) [9]. Among the kinds of preventable problems were adverse interactions between drugs that

*Corresponding author: Nehad M. Hamoudi, | College of Pharmacy, Gulf Medical University, Ajman, UAE, P. O. Box 4184 | Email: nehadmahdi@hotmail.com

should not have been prescribed together, known allergies to drugs that had not been asked before about the patients got a prescription, and excessively high doses of drugs prescribed without considering the patient's weight and kidney function. There is a need to increase the availability of information for the general public concerning potential ADRs due to self-medication and for prescribers concerning ADRs due to drug-drug interactions and polypharmacy [10]. Every year, thousands of people experience interactions between prescribed drugs and over-the-counter (OTC) drugs, or between drugs and herbal products. Other unexpected interactions can occur between drugs and certain foods or health conditions.

Public knowledge and awareness towards drug interaction can help to keep people safe. This study was designed to assess peoples' knowledge towards drug interaction (DI) and their awareness towards the management and prevention of DI in Ajman, UAE as till today no study has been carried out in Ajman, UAE regards DI knowledge and awareness.

2. MATERIALS & METHODS

This cross sectional study was conducted among subjects attending GMC hospital pharmacy/ GMCHRC [Gulf Medical College Hospital and Research Center], Ajman, UAE during the period between July and December. Exclusion criteria include both male and female under twenty and subjects not willing to participate in the study. A non randomized sampling strategy was used. Collection of data was done once weekly during the period of study. A self-administered questionnaire was used as a tool for data collection. The questionnaire was divided into two parts. The first part had information on socio-demographic characteristics of participants. The second part included ten questions for the assessment of participants' knowledge and awareness towards DI and its management and prevention. The general DI knowledge question: Can drug effect be changed by a variety of substances? The types of drug interactions include: drug-drug interaction, drug-food interaction, drug-alcohol interaction, drug-condition interaction and the possible interaction of OTC and prescribed drugs with herbal remedies. The management and prevention of DI can be achieved by: using the same pharmacy for purchasing all prescriptions, reading the labels of all OTC medications before taking, talking to the pharmacist or healthcare provider before taking any new OTC medication, and calling health care provider if you experience a drug interaction. The questionnaire was reviewed by experts for validation. A pilot study was done to test the feasibility of the study. For ethical consideration, this study was approved by the Gulf Medical University Ethical Committee before the start of the study. Verbal consent was obtained from the participants before enrollment in the study and confidentiality of the participants was preserved. Data analysis was performed using PASW version 18 (IBM Chicago, Ilinos). Chi-square test examined the association between variables. Proportions and percentages were used to summarize categorical variables.

3. RESULTS

This study includes 201 participants. Table 1 shows the demographic distribution of the studied participants by gender, age, occupation and nationality. The majority of participants were male (66%). The highest age group was 20-30 years (64%). About half of the studied subjects (52%) were employed. It can be seen that a high percentage of participants were Asian (87%).

Gender	Number	Percent (%)
Male	132	65.7
Female	69	34.3
Age (yrs)	Number	Percent (%)
20-30	129	64.2
30-40	52	25.9
40 & above	20	10
Occupation	Number	Percent (%)
Employed	105	52.2
Unemployed	96	47.8
Nationality	Number	Percent (%)
Asian	175	87.1
Others	26	12.9

Table 1: Demographic distribution of participants

Table 2 shows the distribution of correct knowledge response of participants by gender. Good knowledge response was recorded for DI types with an average (72%) for male and (69%) for female. The low knowledge response was recorded by both male (65%) and female (62%) for the interaction of OTC and prescribed medications with herbal remedies ($P<0.01$). Low knowledge response (68%) for male and (59%) for female was recorded for the management and prevention of DI by visiting and purchasing prescribed medication from the same pharmacy ($P<0.01$).

	Male (n=132)	Female (n=69)
Variable	Number (% correct Response)	
General Knowledge	114 (86.4)	55 (79.7)
Type of Drug Interactions		
Drug -drug interaction	95 (72)	45 (65.2)
Drug-food interaction	94 (71.2)	46 (66.7)
Drug-alcohol interaction	98 (74.2)	54 (78.3)
Drug-disease interaction	100 (75.8)	49 (71)
*Herbal remedies interaction with OTC and prescribed medication	86 (65.2)	43 (62.3)
Management & Prevention		
*Same pharmacy	88 (66.7)	41 (59.4)
Reading labels	102 (77.3)	56 (81.2)
Seeking pharmacist advice	100 (75.8)	50 (72.5)
Call health provider	105 (79.5)	54 (78.3)

*p<0.01

Table 2: Distribution profile of participants correct knowledge response by gender

Table 3 shows the participants' knowledge distribution by different age groups. The lowest knowledge response was

recorded by age group >40 years towards the general knowledge of the DI (55%), DI types with an average response of (57%) and the management and prevention of drug interaction (65%). The low knowledge response was recorded by all age groups with an average of (60.4%) for the possible interaction of OTC and prescribed medications with herbal remedies. In addition to their low knowledge response towards the management of DI through visiting and purchasing prescribed medication from the same pharmacy with an average of (62%).

	20-30 years (n= 129)	30-40 years (n= 52)	>40 years (n= 20)
Variable	Number (%Response)		
General knowledge	112 (87)	46 (88.5)	11 (55)
Type of Drug Interactions			
Drug -drug interaction	93 (72.1)	35 (67.3)	12 (60)
Drug-food interaction	90 (69.8)	38 (73.1)	12 (60)
Drug-alcohol interaction	101 (78.3)	40 (76.9)	11 (55)
Drug-disease interaction	96 (74.4)	38 (73.1)	11 (55)
*Herbal remedies interaction with OTC and prescribed medication	85 (65.9)	34 (65.4)	10 (50)
Management & Prevention			
*Same pharmacy	80 (62)	36 (69.2)	11 (55)
Reading labels	102 (79.1)	38 (73.1)	13 (65)
Seeking pharmacist advice	94 (72.9)	42 (80.8)	14 (70)
Call health provider	101 (78.3)	44 (84.6)	14 (70)

* P<0.01

Table 3: Distribution profile of participants correct knowledge response by age

Table 4 shows the distribution profile of participants' correct knowledge response by occupation. Employed participants have good knowledge towards the types of drug interactions with an average of (77%) compared to (66%) for unemployed. The low knowledge response was recorded by both employed (62%) and unemployed (44%) towards the interaction of herbal remedies with OTC and prescribed medication. Both employed (67%) and unemployed (59%) participants recorded low knowledge response towards the management of drug interaction through visiting same pharmacy.

	Employed (n=105)	Unemployed (n=96)
Variable	Number (%Response)	
General knowledge		
Type of Drug Interactions	92 (87.6)	77 (80.2)
Drug -drug interaction	81 (77.1)	59 (61.5)
Drug-food interaction	76 (72.4)	64 (66.7)
Drug-alcohol interaction	84 (80.0)	68 (70.8)
Drug-disease interaction	83 (79.0)	62 (64.6)
*Herbal remedies interaction with OTC and prescribed medication	65 (61.9)	42 (43.7)
Management & Prevention		
*Same pharmacy	70 (66.7)	57 (59.3)
Reading labels	89 (84.8)	69 (71.9)
Seeking pharmacist advice	87 (82.9)	63 (65.6)
Call health provider	92 (87.6)	67 (69.8)

Table 4: Distribution profile of participants correct knowledge response by occupation

4. DISCUSSION

In this study good knowledge response was significantly recorded by both male and female towards DI types (drug-drug, drug -food and drug-disease interactions) (P<0.01), Table 2. There is no significant difference between male and female knowledge but there is a significant difference between employed and unemployed participants' knowledge (P<0.01), Table 4. The poor knowledge response was significantly recorded (P<0.01) by all participants towards the possible interaction between over the counter (OTC) and prescription medication with herbal remedies and supplements, Table 2, 3, and 4. However it has been reported that a number of herbal dietary supplements cause adverse health effects [11]. Extensive studies have shown that herb- drug interactions have both a pharmacokinetic and pharmacodynamic basis, most of which are attributed to the induction or inhibition of hepatic and intestinal microsomal enzymes (primarily cytochrome P450), and/or drug transporters (P-glycoprotein) [12, 13, 14]. Today, as many as one third of approximately half of all drugs available in the market are derived from plants [15]. There is a need for greater awareness that adverse reactions apparently due to a conventional medicine, might in reality be due to herbal medicine or a drug interaction between herbal medicine and a conventional drug, particularly when a health professional is unaware of the extent of a patient's self medication with alternative therapies [16]. Participants with the age group above 40 years was significantly recorded low knowledge response (p<0.01) towards DI types in addition to their poor awareness towards the management and prevention of DI, Table 3. It was reported that DI was held responsible for 4.8% of elderly admissions [17]; drugs most often involved were NSAIDs and cardiovascular drugs. Health care professionals should be aware of the risks and fully evaluate all medications at each patient visit to prevent polypharmacy from occurring [18]. In this study all participants were significantly unaware (P<0.01) about the management and prevention of DI by visiting and purchasing all drug prescriptions from the same pharmacy. Many DI can be avoided or managed safely if adequate time and precautions are taken by a patient's pharmacist. Having the pharmacist provide patient counseling on the use of prescription and nonprescription medication, disease state(s), and the safety of concurrent use of herbal products plays a major role in avoiding drug interactions. It was reported that pharmaceutical consultation in UAE community pharmacies low and only 10% of these pharmaceutical consultation was related to drug interaction [19]. It's imperative for pharmacist to keep up to date on potential drug-food interactions of medications, especially today's new drugs so that they may counsel properly to the

patients [20]. There is a need for additional drug-drug interaction (DDI) education in health institution curricula as it was reported by other researchers the professional student ability to identify (DDI) and select an appropriate management strategy is low [21]. The pharmacist, along with the prescriber has a duty to ensure that patients are aware of the risk of side effects and a suitable course of action should they occur, with their detailed knowledge of medicine, pharmacists have the ability to relate unexpected symptoms experienced by patients to possible adverse effects of their drug therapy [22].

5. CONCLUSION

This study reveals that the studied population in Ajman/UAE has a good general knowledge towards DI, types of DI (drug-drug interaction, drug-food interaction, drug-alcohol interaction, drug-disease interaction). There is a need to improve the knowledge of elderly patients towards DI types and the risk of polypharmacy and their awareness towards the management of DI. Most of the participants were unaware of the possible interaction between OTC and prescribed medication with herbal remedies and supplement, in addition to their poor awareness towards the management and prevention of drug interaction by using the same pharmacy for purchasing all prescribed medication. Intervention is required to improve peoples' knowledge. Mass education program by health authorities is required for public in one side and health professional from the other side to control unwanted adverse drug reactions.

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Conflict of Interest: None Declared

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