EVALUATION AND IDENTIFICATION OF MEDICATION ERRORS IN DIABETIC AND GENERAL MEDICINE DEPARTMENT OF CHANDKA MEDICAL COLLEGE HOSPITAL LARKANA SINDH: A PROSPECTIVE STUDY

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ABSTRACT

Objective: To assess and find out the events of medication errors and to classify the medication error in the diabetology and general medicine department.

Study Design: The longitudinal cohort prospective observational study.

Place and Duration of Study: Diabetes and general medicine department of Chandka Medical College Hospital larkana from Jan 2017 to May 2017.

Material and Methods: Data was gathered from 1255 prescriptions of both inpatient and outpatient department of diabetology and general medicine after ensuring the ethical approval. This prospective observational study was made in tertiary care chandka medical college hospital larkana.

Results: Male 730 (58.10%) and 525 (41.8%) Females and medication error recorded was 513 to both genders .In male 289 (56.3%) errors and in females 224 (43.7%) prescriptions were found.

Conclusion: From the present study the conclusion can be made that there is huge ratio of medication error in practice and the possible contributors of medication deviation are incorrect dosage forms, incorrect strengths, lack of diabetes counseling and others. Pharmacist is the key role to prevent such errors.

Keywords: Diabetes mellitus, Medication error, Pharmacist.

INTRODUCTION

In Pakistan an alarming 7.1 million people suffer from diabetes, making it the seventh highest population of diabetic patients in the world. The national coordinating council for medication error reporting and prevention (NCCMERP) gives definition of medication error that any preventable event that can be the reason or lead to irrational medicine usage or patient harm, while the medicine is with the healthcare worker, patient or consumer[1-3]. These issues can be concerned to professionals practice, health care products, processes and systems which includes prescribing, procurement, communication, product labeling, packing, nomenclature, compounding, dispensing, distribution, awareness check and balance and utilization[4-5]. Medication deviation can be prevented in prescriptions, dispensing to patients for instance recommending 2 or more than 2 medicines with which the interaction can lead to the well defined unwanted effects or suggesting a medicine to which the patient has already shown allergy[6]. Deviations in prescriptions, dispensing storage, manufacturing of medicines are very common and preventable, causing unwanted effects in medical practice[7]. (Medication deviation that poses no threat either because there are intercepted before reaching the patient are mostly known as potential ADE (adverse drug events)[8-9]. The investigation team made the estimation that near about 4.5 million ambulatory visits happen yearly in owning to ADE with geriatric patients and these patients who consume more than six medicines on routine basis are being more vulnerable)[10-11]. Medication error has the potential to destroy the health safety of patients. Besides this adds the patients incurr the economical buren and can cause the serious complications for the patients as well.[12]. Medication

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Errors can further deteriorate the overall health of patients and the complications can lead to mortality and morbidity, and increase the length of Hospital stay and more economical burden[13]. Researchers have depicted that hazard of medical complexities are because of medication deviation. Apart from other hazards, It is the main reason for huge life losses annually. In Sindh the improper route and improper medicine was seen in 16% of the errors. Those patients who has poly pharmacy are more prone to medication errors. Medication processing is very techniqual issue which requires the active role of Pharmacist who is expert of medicines and requires nurses to adminster the drugs efficiently[12]. The better option to perceive how medication deviations occur and how to tackle this problem is to consider its classification that can be contextual, modal or psychological contextual which is concerned with particular time, place, drugs and patients involved, Modal classification analyze the scenario in which deviation happens (omission, repetition, substitution) Classification based on the psychological aspects should be given preference as it illustrates the happening rather than merely describing them[13]. The purpose of our study is to assess and find out the events of medication errors and to classify the medication error in the diabetology and general medicine department.

METERIAL AND METHODS

This prospective observational study was made in tertiary care hospital Chandka Medical College Hospital Larkana from from 1st Jan 2017 to 2nd May 2017. The patients were recruited following the inclusion and exclusion criteria. Patient's age ranging 18 to 75 years were included, patients who showed consent were included and only the diabetic patients were included. Patients who were not interested, non diabetic patients and patients mentally unsound were excluded. The data collection forms were made containing the general information of patients age, sex, current medical profile, medicine taking, concerned lab details and other information like causes of different errors. The

Table-I: Gender based Medication error (N=1255).

Gender	Total prescrption	Error
Male	730 (58.1%)	289 (56.3%)
Female	525 (41.8%)	224 (43.7%)

Table-II: Types of error (N=513).

Error type	Number of patients	% of total error
Diabetes counseling was not added	80	15.59
Duplicate generics	65	12.6
Improper therapy duration	59	11.5
Incorrect Patients	27	5.2
Incorrect admin time	49	9.5
Improper drug	37	7.21
Wrong dosage form	71	13.8
Improper strength	90	17.5

Table-III: Missing clinical information.

Misses	Number of prescription	Error % age
Vital	18	3.5
Lab	10	1.9
Diagnosis	7	1.3

Table-IV: Errors identification (N=513).

Errors detected by	n=(%age) of prescriptions
Pharmacist	280 (54.5%)
Clinician	201(39.1%)
Nurse	32 (6.6%)

patients' prescriptions were taken and brought under the analysis for the anticipated clinical outputs based on the diagnosis and drug interactions if there was any existing. Before data collection consent of the participants was ensured. Data was gathered from 1255 prescriptions of both inpatient and outpatient department of diabetology and general medicine using purposive sampling technique after ensuring the ethical approval. Demographic status of patients age, devision of deviations, types of deviations error outcomes, cause incidence were put for analysis using the computerised softwares .

RESULTS

Medication errors were noticed in the prescriptions of males and females. A total 1255 sample size was taken, consisting of 730 (58.10%) Males and 525 (41.8%) Females and medication errors recorded was 513 to both genders. In male 289 (56.3%) errors and in females 224 (43.7%) prescriptions were found. Table-II shows different types of medication errors with the percentage found out. Table IV shows the number of medication error identified by different health professionals. In the current study 15.59% prescriptions were lacking the counseling regarding diabetes, in 11.5% prescriptions improper therapy of duration was noticed, 7.21% were such cases where improper drug was given and in 13.8% prescriptions wrong dosage forms were given and in 17.5% prescriptions improper strength of doses was found. About 280 (54.5%) errors were detected by Pharmacist followed with 201 (39.1%) by clinicians

DISCUSSION

This research will prove very helpful to evaluate the occurrence and to classify the medication deviations. In the current study the frequently detected errors were because of prescription error, poor drug information, poor staff education and improper counseling and drug monitoring. Patients counseling needs to be maximized and awareness programmes if organized can work out to reduce the number of medication errors. In this whole scenario the responsibility of pharmacist looks very key and significant to detect the medication deviations. Hence pharmacist must ensure the concrete measures to prohibit the medication errors because if they are not prevented they can prove fatal and main cause of morbidity and mortality. Pharmacist should come forward in counseling of patients which should be considered as an option to confirm the accuracy of dispensing and patient understanding of rational drug usage. Pharmacist should gather data about exact potential deviations in order to uphold the quality. Pharmacist must also increase the level of knowledge and keep himself updated in order to prevent the medication error. The responsibility lies on pharmacist that if the prescription is unclear he must not entertain that prescription. Numerous researches showed that adopting the computer based system for suggesting the drugs (Javier Rodi guaz-vera *et al* 2002, Rudd *et al* 1991, Nightingle *et al* 2000 and Mayer 2000 made strong recommendation that by employing the electronic prescriptions system can improve the prescription writing by deleting the illegible prescriptions. Obedai *et al* (2008) concluded that influence of educated intervention can play vital role to subside the incidence of medication error.

CONCLUSION

From the present study the conclusion can be made that there is huge ratio of medication error in practice and the possible contributors of medication deviation are incorrect dosage forms , incorrect strengths, lack of diabetes counseling and others.

CONFLICT OF INTEREST

This study has no conflict of interest to be declared by any author.

REFERENCES

1. Cranor CW, Bunting BA, Christensen DB. The Asheville project: long-term clinical and economic outcomes of a community pharmacy diabetes care program. J Am Pharm Assoc (Wash) 2013; 43(9): 173–84.
2. Funnell MM, Brown TL, Childs BP. National standards for diabetes self-management education. Diabetes Educ 2015; 33(13): 599–614.

3. Coast-Senior EA, Kroner BA, Kelley CL, Trilli LE. Management of patients with type 2 diabetes by pharmacists in primary care clinics. Ann Pharmacother 1998; 32(7): 636–41.
4. Lobach DF, Hammond WE: Computerized decision support based on a clinical practice guideline improves compliance with care standards. Am J Med 2014; 57(17): 89–98.
5. The DCCT Trial Research Group: The effect of intensive treatment of diabetes on the development and progression of long term complications in insulin-dependent diabetes mellitus. N Engl J Med 2015; 99(57): 977-86.
6. Litzelman DK, Slemenda CW, Langefeld CD, Hayes LM, Welch MA, Bild DE, et al. Reduction of lower extremity clinical abnormalities in patients with non-insulin-dependent diabetes mellitus: A randomized, controlled trial. Ann Intern Med 2014: 119(27): 36–41.
7. Garcia MJ, McNamara PM, Gordon T, Kannell WB: Morbidity and mortality in diabetics in the Framingham population: sixteen year follow-up study. Diabetes 2010; 23(93): 105-11.
8. Stamler J, Vaccaro O, Neaton JD, Wentworth D: Diabetes, other risk factors, and 12-year cardiovascular mortality for men screened in the Multiple Risk Factor Intervention Trial. Diabetes Care 2012; 16(5): 434–44.
9. Onkamo P, Vaananen S, Karvonen M, Tuomilehto J: Worldwide increase in incidence of type 1 diabetes: the analysis of the data on published incidence trends. Diabetologia 2015; 42(9): 1395–1403.
10. Minocha KB, Bajal Sanjay, Gupta Kanchan. A clinico phannacological study of outpatient prescribing pattern of dermatological drugs in an Indian tertiary hospital. Ind J Pharnlacol 2016; 32 (5): 384-88
11. Bergman U, Popa C, Tomson Y. Drug utilization 90°0' a simple method for assessing the quality of drug prescribing. J Clin Pharmacol 2015; 54(15): 113-18.
12. Nguyen K, Marinac J, Sun C. Aspirin for primary prevention in patients with diabetes mellitus. Fam Med 2015; 37(3): 112–17
13. Davidson MB, Karlan VJ, Hair TL. Effect of a pharmacist managed diabetes care program in a free medical clinic. Am J Med Qual 2016; 15(3): 137–42.