Original Research Article

Pharmacist Intervention and Medication Errors at DHQ Hospital Bannu Kp, Pakistan

ABSTRACT

Deaths related to drug errors are common in Pakistan, but these are not accurately reported. Since medication management is the main responsibility of nurses, it is vital that they have a good understanding of high alert of medication error. Patient health care, particularly drug fortification, is the main exertion and the challenge for healthcare professionals around the world. The profession of a pharmacist is world-renowned for providing medical care to patients. Herein, we aim to assess the role of pharmacist according to medications error in Government sectors hospitals located in district Bannu Kp Pakistan.

We collected a total number of 368 outdoor prescriptions from July 2011 to December 2011 from District Head Quarter Hospital, Bannu (DHQB). We found 71% of drug-drug interactions (DDIs), 32% of inapt dosage faults and 35% of management errors among them. Male patients with angina pectoris and myocardial infarction had a higher MEs ratio than female patients. According to the findings, clinical pharmacists in hospital wards must provide prompt counseling to primary care doctors during the prescription process, as well as management recommendations to nursing staff and other auxiliary medical employees.

Keywords*:* DHQ Hospital Bannu, Cardiovascular disease patients, Anti-angina, Pharmacists

INTRODUCTION

The mistakes concerned with the drugs are a universal issue; however, most of the research on MEs is carried out in developed countries including Southeast Asian countries. Pharmacists play a significant role in the care of patient's life throughout the world.[2] According to a report published by the National Drug Error Reporting and Prevention Coordinating Committee (NCCMERP), a medication error is any preventable incident that could mistreatment a patient when the medicine is under the supervision of the medical specialist. Such events cause by order communication, product labeling, packaging, and nomenclature, compounding, allotting, distribution, administration, education, tracking, and

use are examples of activities related to expert practice, health care products, processes, and systems. MEs arise due to lack of knowledge capability, performance and inexperience staff and defects in systems.[3,4]In Pakistani hospitals, medication errors are a major concern, yet few are recorded. For determining the appropriateness of therapy, the prevalence and kind of drug errors are critical.[5] Approximately 7,000 to 9,000 deaths are reported each year in developing nations such as the United States as a result of MEs, while thousands of patients fail to disclose and thousands more suffer from various consequences and require medication.[7] Throughout the world, medication errors are regarded as a severe health and mortality issue. Medication mistakes are estimated to be responsible for about 0.1 million fatalities worldwide each year.[8]

According to studies, the risk of medication errors in children is three times higher than in adults, with dose errors being the most common.[9,10]

The aim of this study to improve therapeutic effectiveness and reduce drug mistakes, pharmacists are crucial.

RESEARCH METHODOLOGY

To study the drug inaccuracies, we executed a clinical study at DHQB. From July to December 2011, 368 prescriptions from indoor and outdoor heart disease sufferers were collected from a DHQB.

Inclusion criteria:

In this study, we examined men and women between the ages of 30 and 100 who were taking various combinations of the drugs prescribed to them.

Exclusion Criteria:

Topical medicine, such as emollients, lotions, ear and eye drops, and so on, were eliminated. Patients who are treated with first assistance in an emergency are likewise exempt.

Ethical statement

The study was performed under ethical aspects.

Statistical Analysis

The drugs without of medication error were placed as a control group. We applied student *t*-test (two way anova) $P < 0.05$ (*P 0.05; **P 0.01; and ***P 0.001).

RESULTS

In DHQB, a total of 368 prescriptions were collected, and the DDI ratio was found to be 71%. The critical DDIs analysis was carried out on the QHQB prescriptions gathered, which are listed in Table 1. **DRUG-DRUG INTERACTION (DDIs) AT DHQB**

Table-1Percentage, level of severity, consequence of drug inaccuracy in prescription

S. No	DDIs	Percentage %	Level of Severance	Outcome	Recommendations
1	Ceftriaxone with Omeprazole	37(6%)	Slight	Down the conc. of ceftriaxone	Monitor for reactions
2	Digoxin with Omeprazole	21(3.75%)	Severe	Rise conc. of digoxin	Avoid concurrent use
3	Enoxaparin with Clopidogrel	25(4.5%)	Severe	Cause upper GI bleeding	Keep off using this combination at the same time
4	Disprin with Clopidogrel	26(4.6%)	Severe	Enhance anti-coagulant effect	Abstain from this combination
5	Digoxin with Ceftriaxone	24(4.3%)	Moderate	Decline the level of digoxin	Monitor clinical status
6	Digoxin with Frusemide	26(4.6%)	Moderate	Enhance cardiac arrhythmias, hypokalemia	Desist using this recipe at same time
7	Frusemide with Anti-coagulants	15(2.7%)	Moderate	Risethe effect of anti-coagulantion	Monitor for reaction
8	FrusemidewithCeftriaxone	28(5%)	Moderate	Cause nephrotoxicity	Desist to this combination at the same time
9	Frusemide with Captopril	10(1.7%)	Slight	Renal failure and hypotension	Monitor for reaction
10	Frusemide with Spironolactone	19(3.4%)	Slight	Orthostatic hypotension	Monitor for postural hypotension
11	Digoxin with Atenolol	12(2.1%)	Slight	Cause Bradycardia	Desist this combination
12	Captopril withSpironolactone	06(1.1%)	Moderate	Hyperkalemia	Abstain this combination at the same time
13	Ciprofloxacin with Metoprolol	10(1.7%)	Moderate	Enhance the plasma metaprolol level	Abstain this combination
14	Enoxaparinwith NSAIDs	14(2.5%)	Severe	Rise anti-coagulant effect	Abstain use of this combination
15	Captopril with NSAIDs	18(3.2%)	Slight	Decrease anti-hypertensive effect of captopril	The dose of captopril is needed to be adjusted in this combination
16	Dexamethasone with Aspirin	16(2.8%)	Slight	Rise GI ulceration	Keep off using this combination
17	Streptokinase with Anticoagulants	15(2.6%)	Severe	Riseanti-coagulant effect	Monitor for the respective effect
18	Paracetamol with Anticoagulants	10(1.8%)	Severe	Enhance prothrombin time	Monitor for the respective effect
19	Metoprolol with	08(4.1%)	Moderate	Enhance	Refrain from this

	Benzodiazepines			benzodiazepine influence	combination.
20	Digoxin with Verapamil	14(2.5%)	Moderate	Rise digoxin level	Adjustment is needed in the combined dose.
21	Heparin with Warfarin	10(1.8%)	Severe	Rise anti-coagulant effect	Keep away from this combination
22	Heparin with Anticoagulants	15(2.7%)	Severe	Rise anti-coagulant effect	Need Monitoring of their performance

AGE WISE MEs:

A general quantity of acquired prescriptions become assorted by means of age and calculated percentage of MEs in keeping with age wise 40-55, 56-65, 66-75, and 76-97as shown in Table-2.

DISEASE WISE MEs:

1. **ANGINA PECTORIS**

A summate of 368 prescriptions, 81 prescriptions were documented for sufferers with angina pectoris. After prescribing by a medical doctor, the percent of men taking medicine incorrectly increased to 37 percent, compared to 36.9% for women, as illustrated in Figure 1.

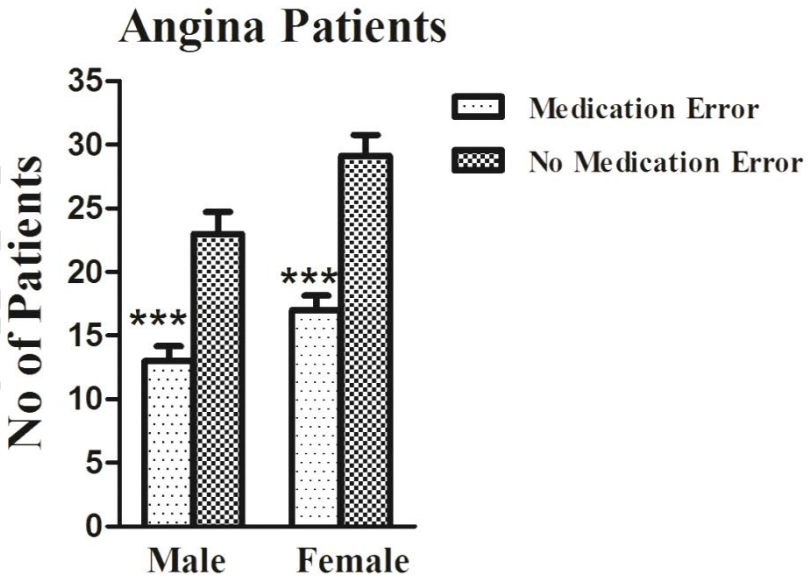

Figure.1MEs in Angina patient's prescriptions

The angina pectoris suffers has been equated with sufferers who had no MEs. The manage institution become angina pectoris without MEs.

2. **MYOCARDIAL INFARCTION (MI)**:

The 368 prescriptions had been accomplished for the myocardial infarction. As shown in Figure.2, statistical examination of the data revealed that men had a higher rate of incorrect prescriptions than women.

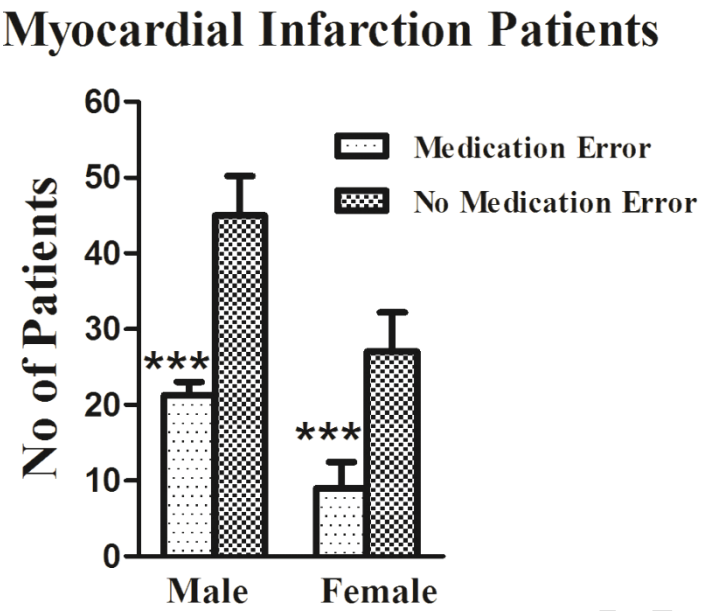

Figure.2The erroneous prescription of MI

3. HYPERTENSION:

Patients with hypertension provided 166 prescriptions out of a total of 368. As indicated in Figure.3, we discovered that females have a higher MDEs ratio than males.

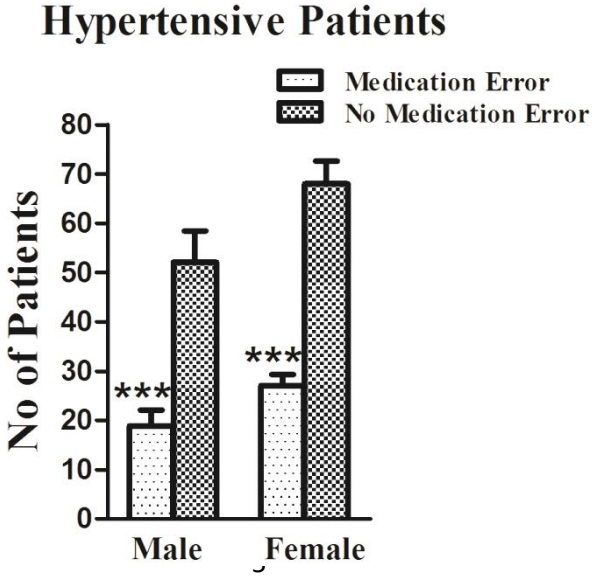

Figure.3MEs in hypertensive patient's prescriptions

DEEP VENUS THROMBOSIS (DVT):

We were able to get 19 out of 368 prescriptions for DVT patients. As seen in Figure 4, men patients showed significant MEs than women patients.

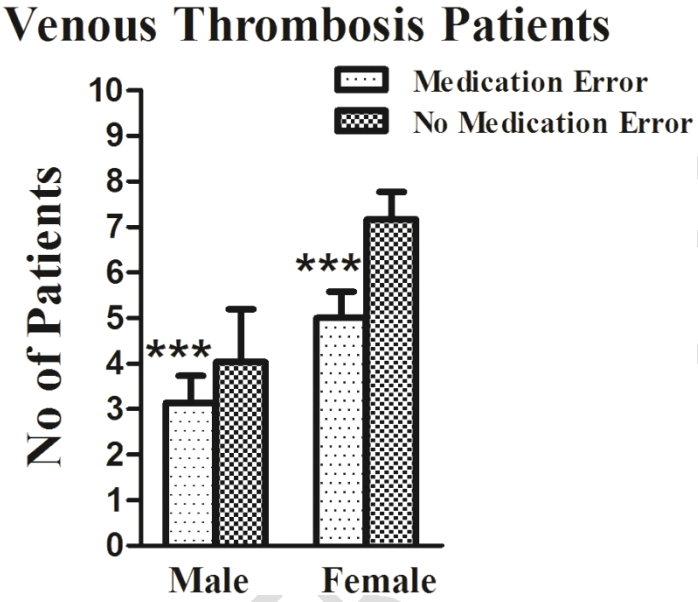

Figure.4 Division of prescriptions of the DVT patients according to MEs

DISCUSSIONS

The numbers of cardiovascular MEs per 100,000 people increased by 104.6 percent (P0.001) between 2000 and 2012, and the ratio elderly had the greatest rate.[11] We noticed a significant amount of 354 (63.21 percent) DDIs in the DHB KP Pakistan by checking the prescription. According to another study, DDIs are a possible threat, and the prescribing doctor must be aware of this risk.[12] According to another study, DDIs are a potential issue that should be considered by the prescribing clinician.[13]

Digoxin and Omeprazole medications pervert were noticed to be 21 (3.75%) in DHQB. The DDIs between Furosemide and Anticoagulant, which are related with the enhanced anticoagulant effect, were confirmed in 15 (2.75%) prescriptions.

In DHQB, there were 14 DDIs (2.5%) between enoxaparin and NSAIDs. The severe excess of DDIs at DHQB, blockers, and Metformin elucidate 34 (4.8 percent), typical limits 28 (5%), and the ratio was 55 between furosemide and Ceftriaxone (7.7 percent).

The MEs in the prescriptions of Angina and Myocardial suffer were 18 ± 4.9 (27.7%), 41 ± 1.4 (25.4%), 13 ± 2.00 (37%) and 21 ± 8.4 (31.8%).

The MEs in prescriptions for Angina and Myocardial Infarction were 18 ± 4.9 (27.7%), 41 ± 1.4 (25.4%), 13 ± 2.00 (37%) and 21 ± 8.4 (31.8%). After further investigation, we observed that hypertension patients' prescriptions had a high percentage of MEs, and that the percentage of MEs in women's prescriptions was significantly higher than in men's. We found that MEs in deep Venous thrombosis had a very substantial 3 ± 1.41 ratio (42.8 percent). A major ME was found in the obtained prescriptions for AFib, AV blocks, and AFL. Multiple medication use (DDIs) is a leading source of adverse drug events, which can result in a higher risk of hospitalization and higher medical costs.[14-17] ADEs due to the discrepancies between these patients who were transferred between hospitals and nursing homes can be reduced by pharmacist medication reconciliation and discussion with doctors.[18]

Our findings imply that appointment of pharmacists to a ward with clinical practice abilities can help to reduce MEs. It is necessary to check with a pharmacist before using medicine. DDIs and adverse drug testing software should be used to identify and evaluate MEs found in prescriptions, and hospital and community pharmacists should retain computer records. MEs could be controlled in the pharmacy by organizing medications into therapy groups. MEs can potentially be reduced by establishing a Drug Information Center (DIC). Requests for various types of drug records should be placed in the wards and out-of-affected-person departments. Nurses have a limited understanding of pharmacology, although they are well-versed in medicine administration.[19] Our findings imply that the pharmacist's role is critical in CVS patient drug prescriptions since such a combination of pharmaceuticals has significant interaction effects, and that physicians should take special caution when prescribing these drugs to CVS patients.

CONCLUSION

Medication errors are common in inpatient prescriptions, with errors in dose, time, omission, pace, drug preparation, unapproved drug, administration technique, dosage form, and route all being possible. Prescriptions are properly intervened by pharmacists, who play an active role in reducing pharmaceutical errors.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because

we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

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