Review Article

Medication Error: Are We Taking Seriously?

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ABSTRACT

A medication error is described as "any preventable event that may cause inappropriate use of medication or patient harm while the medication is in the control of the healthcare professional, patient, or consumer''. Medication error can be occurred due to prescribing error like inappropriate, irrational, ineffective prescribing of medication and may also occur due to the dispensing error like wrong dispensing of medication including dispensing of medication in wrong dose and dosage form and therapeutic duplication of the medication and also inappropriate labeling. In healthcare, medication failures are a common concern which cost billions of dollars annually while causing substantial morbidity and mortality. While national attention has been paid to prescription dispensing problems errors, it remains a widespread issue. Developing a multi-faceted educational and preventive approach is the best way to increase patient safety. Clinical pharmacists reduce the potential risks of the medication errors by providing the pharmaceutical care to the patients in the hospitals. It is the responsibility of the clinical pharmacists to review the medical charts in the ward by completing the patient's pharmacotherapy monitoring form and reported related drug therapy problems. Accurate and complete medication reconciliation can prevent multiple prescribing and administration errors. Failure to act reconciliation of drugs may be compounded by the practice of writing "blanket" orders, such as "resume pre-op medications," They are highly error prone and are known to result in adverse drug reactions.

Keywords: Medication error, Inappropriate dose, Unauthorized drug, Omission.

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INTRODUCTION

A medication is a product which contains the substance which has proven therapeutic or biological effect with additives or excipients. The active compound with therapeutic effect is known as drug.[1]

A medication error can be said to be failure in the treatment process that may cause harm to the patient or have the potential to lead to the harm. Medication error can occur in any stage of the treatment process from prescribing of medication to administering the medication. Medication error can be occurred due to prescribing error like inappropriate, irrational, ineffective prescribing of medication and may also occur due to the dispensing error like wrong dispensing of medication including dispensing of medication in wrong dose and dosage form and therapeutic duplication of the medication and also inappropriate labeling. Medication error can be occurred not only in prescribing and dispending of the medication but also wrong administration of the medication like administration of medication in wrong dose and dosage form and wrong frequency and route may also lead to the medication error.[1]

It is important to identify and rectify the medication error where it May lead to the therapeutic failure or serious harm to the patient so medication error can be avoided by improving the rationality of prescribing of medication and can be also can be avoided proper dispensing of medication in appropriate dose, dosage form and also by providing proper patient counseling about the medication administration error can be also avoided.[1]

Medication error can be defined as 'a failure in the treatment process that results in harm to the patient, or has the potential to lead to it.' The use of the term 'failure' means that the process has fallen below some attainable standard. The 'treatment process' includes the treatment of symptoms or their causes, or the investigation or prevention of disease or physiological changes.[2]

It contains not only therapeutic medications, but also the above-mentioned compounds. It also involves the manufacture or compounding of a drug, its prescription, transcription (if applicable), distribution and administration, and the subsequent monitoring of its effects. 'Harm' also implies 'lack of benefit' in the description, a type of failure of treatment. It does not specify who makes the mistake-it may be a physician, a nurse, a pharmacist, a caregiver, or another; nor does it specify who is responsible for avoiding mistakes.[2]

Various definitions of drug errors have been tested, as all technical definitions should be. In this case, it was done by drawing up scenarios and determining which would constitute an error under each of the definitions. The definition above, slightly modified, was the only definition that categorized all error scenarios and only error scenarios.[2]

METHODOLOGY

This review includes data related to medication error usually done by the physician. In this review we have summarized about types of medication error, detection of medical errors, various guidelines for avoiding medication error, prevention strategies of medication errors, role of clinical pharmacist in managing medication errors, the information was collected through computerized search from various research article and guideline related to medication error.

What is Medication Error?

According to the FDA or the National Coordinating Council for the Reporting and Prevention of Medication Errors (NCC MERP), a medication error is described as "any preventable event that may cause inappropriate use of medication or patient harm while the medication is in the control of the healthcare professional, patient, or consumer''. The factors leading to medication errors, which are commonly classified as patient, system and personal factors, have been identified by numerous studies.[3]Medication errors can lead to adverse outcomes such as increased mortality, increased duration of hospitalization, and increased medical costs. Although all members of the health care team may be responsible for medication errors, nursing medication errors are the most common.

Types of Medication Errors?

Medication errors were classified according to the World Health Organization classification, which describes the errors of the medication: prescribing errors, administration errors, dispensing errors and monitoring errors. In addition, according to the National Coordinating Council for Medication Error Reporting and Prevention, we have also considered severity

- Administration errors,
- Prescribing errors
- Monitoring errors
- Dispensing errors

In general, a drug error was defined as a dose administered differently than ordered on the patient's medical record. Medication errors have been viewed as system defects; Medication error categories were defined as follows

1.Unauthorized drug: The administration of a dose of medication that was never ordered for that patient.

2. Extra dose: Any dose given in excess of the total number of times ordered by the physician, such as the dose given on the basis of the expired order, after the drug has been discontinued or after the drug has been stopped.

3. Miscellaneous dose: any dose of preformed dosage units (such as tablets) that contained invalid strength or number; if an injectable product, any dose that was ±10 per cent or more different from the correct dosage; if any other dosage form, any dose that was ±17 per cent or more of the correct dose, in the opinion of the observer. In the evaluation of the dosage, measuring devices and graduations were those provided for regular use by the institution: graduations on injection syringe, graduations on oral fluid medicine cups, and drops on the dropper provided. False dose errors for ointments, topical solutions, and similar drugs were counted only when the dose was quantitatively determined by the physician.

4.Omission: failure to give the daily dosage. If no attempt has been made to administer the dose, an error of omission has also been recorded. If the patient refused to take the medicine, an opportunity for error was not counted provided that the nurse responsible for administering the dose tried to give it. Doses withheld according to policies calling for the withholding of doses of medication, such as nothing by mouth prior to treatment, were not counted as errors or opportunities for error. Omissions were detected by comparing drugs administered at a given time with doses that should have been given at that time on the basis of written doctor's order and protocols.

5. Medication administered to a patient using a route different from that ordered. Doses given at the wrong site, such as the right eye instead of the left eye, were included in this category.

6. Wrong form: The administration of a dose in a different form than that ordered by the physician. If enteric-coated aspirin has been ordered but plain aspirin has been administered, an incorrect form error has been recorded.

Each dose observed to be administered or omitted was operationally defined as a dose and is the basic unit of data. Any dose could only be in error or not in error. The doses included only those for which an observer was aware of the preparation and administration of the medication or for which the observer was certain that it had not been administered.[3]

There are many types of medical errors that can occur anywhere in the healthcare system, from hospitals to nursing homes to pharmacies. The focus of this article is on pharmaceutical errors in nursing. We will examine different types of drug errors, how they occur, and preventative measures to reduce these errors. Medical errors are not only monetarily costly, but costly in terms of patients' loss of trust in the healthcare system, reduced patient satisfaction and degraded morals among healthcare professionals, who often feel helpless to change the situation.[4]

DETECTION OF MEDICAL ERRORS

In order to assess and try and fix a problem the first time required to collect data from them on this problem is named, then 343 medical errors and medical risk management to overview the information, added. Strategies for compilation include: retrospective graph, monitoring of results, anonymous incident reporting, case audit and complaint and litigation analytic review. Each solution has unique strengths and none by itself is adequate

Incident analysis is a valuable way of learning about healthcare institutions and, ideally, contributes to progress to improve patient safety, such as the introduction of procedures or systemic changes in the environment where the error has been found to be more likely to occur. The primary policy that would be implemented by medical staff to try to reducing mistakes is non-punitive incident reporting.[6]

If this is the purpose, it is important to record not only injuries, but also near misses, where a near miss is described as "any action or condition that might have caused an injury or damage." Near misses are valuable resources to boost patient safety, since they provide a wider description of the problem than just those accidents that actually occur. Incident reporting has its drawbacks as a way of determining the causes of human error in medicine: reports are not well distributed across all personnel grades, adverse effects can occur only over a matter of days, weeks or months, voluntary reporting is seldom used because workers are not sure of anonymity.[6]

Detection

Chart analysis, computerized tracking, injury detection, and scanning evidence for allegations are the key approaches for identifying adverse events. Medication errors are reported mostly by close observation, voluntary notification (by physicians, pharmacists, nurses, patients, and others) and chart analysis.

Based on relevant references (medical charts and laboratory records, drug data and administrative data), the chart analysis is retrospective. By using computerized evidence, such as electronic medical reports, computerized doctor order entry (CPOE), and computer-integrated stimuli, it can be strengthened.

The disadvantages of this approach are the challenge of educating reviewers (nurses, pharmacists, teachers, testing assistants) and the fiscal and human capital necessary. In addition, the outcomes depend on the consistency of reporting and the ability of reviewers to capture effects.[12]

Computerized Monitoring

The current version of voluntary pharmacist reporting (pharmacy logs) is computerized tracking. Pharmacists locate order mistakes, correct them, and complete a report. Therefore, drug failures before adverse effects occur should be intercepted. If CPOE is in use, errors can be easily found in prescribing and dispensing. The introduction of advanced software facilitates the convergence of laboratory and clinical evidence with Clinical Decision Support Systems (CDSS), including adverse effect identification and prevention. Protection is improved by CPOE systems but needs to be used in conjunction with CDSS. It is expensive and important for safety to incorporate information technology, but it can also give rise to new, unknown risks.

Administrative databases

Screen International Classification of Diseases Administrative Lists, 9th Edition Codes, for statistical purposes. From a mixture of discharge results, patient safety indices and adverse event adjusted rates are drawn up. However, because of the scarcity of clinical records, adverse effects are poorly detected.

The importance of the screening of data on claims is constrained by the underlying, often irrational, motives for action and the presence of small numbers of local claims. Events also need to be continuously monitored, and almost one-third of claims lack proof of mistakes. Data on statements have a positive predictive benefit of about 50 percent for adverse outcomes, of which just about 18 percent point to a drug's source.

Direct examination is the only available tool for the identification of drug management errors. A qualified nurse monitors the delivery of medications, documents each activity, and then correlates what has been done with the original instructions of the doctor. It is important to train the observer and visit various units in sequence.[12]

In high-reliability organizations, monitoring mechanisms originate from processes. Their application to health systems, though, is very hard. Reports sent to administration or legal services can trigger confusion and bear a fault connotation. In addition, papers, according to the field of application, can affect numerous entities, causing multiplication and incorrect analysis.

Reporting systems

Reporting of events Where this is in effect, significant accidental events/deaths are mandatory and limited to (sentinel event list). With root cause analysis, a prompt narrative account of the incident must be submitted to the central agency that provides annual statistical analyses, captures all adverse effects and drug failures, and addresses questions for quality management.

There are two safety-oriented levels of reports:

1.Voluntary reporting must be confidential, private and free of responsibility. To assist with reporting and review, a simple standardized form is required. Feedback, daily reporting and corrective action execution are all important. Near misses and prescription mistakes are commonly registered, but adverse effects are rarely documented.

2.A growing number of studies do not generally reflect bad practice, but are due to increased incident capture. The results of voluntary notification are the detection of deficiencies of functioning and latent systems, proof of the sensitive existence of procedures, the removal of contributory factors and the propagation of a safety culture.

Generally, an increasing number of studies do not represent poor practice but are attributed to improved capture of events. The discovery of defects in active and latent processes, evidence of the responsive nature of procedures, elimination of contributory factors and the spread of a protection culture are the effects of voluntary notification.[12]

Various guidelines for avoiding medication error:

The purpose of these guidelines is to provide pharmacists with practical recommendations and best practices for the management and protection of patient harm from medication errors in the setting of the health care system. These guidelines are primarily intended to apply to acute care settings as a result of the special collaborative processes established in this setting. Medication errors may occur at any point in time.

1. Planning for safe medication practices:

Safe drug practices begin by placing drug safety as an organizational and departmental priority and by implementing a system that will support these practices. The organization must have a comprehensive program that includes a leader in the safety of drugs, key elements in place to provide a framework for safe medicine practices, and a successful strategic plan. The error reporting and review system is a key component of the drug safety system; the goal is to improve patient safety and prevent harm to the patient.[10]

2. Selection and procurement:

Selection and procurement of medications includes the proper selection of which medicines will be stored at the institution. Divided into

- Formulary assessment and management:

A well-designed form system will guide clinicians to prescribe the safest and most cost-effective agent for the treatment of a particular disease or medical condition.

- Safety-alert monitoring: Medication safety evaluation does not end when a drug is added to the form. Pharmacists should be actively involved in evaluating the payment and replacement decision of all therapeutic goods.
- Medication shortages management: Hospitals, via the pharmacy department, should have a process to communicate shortages, Hospitals, via the pharmacy department, should have a process to communicate drug shortages, Pharmacy department should play a pivotal role in developing and managing a contingency plan in close collaboration with affected physicians and health-system committees when faced with severe shortages.

Storage: Careful storage of medications in the pharmacy and throughout the hospital can help reduce the risk of errors in medications. Ambiguous nomenclatures should be avoided. The same drug nomenclature should be used in all databases used throughout the drug use process using differentiation and screen alerts for drugs that may pose a risk of potential errors, Pharmacy inventor.[11]

PREVENTION STRATEGIES OF MEDICATION ERRORS

In healthcare, medication failures are a common concern which cost billions of dollars annually while causing substantial morbidity and mortality. While national attention has been paid to prescription dispensing problems errors, it remains a widespread issue. Developing a multi-faceted educational and preventive approach is the best way to increase patient safety. Healthcare providers working as a group and engaging as well as empowering patients to be more knowledgeable about their drugs should be stressed. With a culture of protection, it is possible to minimize medication mistakes in dispensing. Hospitals have developed strategies to prevent errors in medications. Some of these strategies include:

- Double-check the dosage and frequency of all high-alert medications.
- Talk to the pharmacist if you are unsure of the drug or dose.
- If writing is illegible, don't give the medicine you think you know what it is.
- Call the health care provider to confirm the dose or the drug.
- Check the calculation to make sure that the right therapeutic dose is given to the patient.
- Ask another clinician to re-check your calculations.[5]

Models and management of human error

Two approaches to the human fallibility question are possible: the approach to the person and the method. The person strategy focuses on people's faults, blaming them for oblivion, carelessness or moral failure. The system approach concentrates on the conditions under which individuals work and tries to build defenses to avert errors or mitigate their effects The fundamental principle in the system strategy is that individuals, even in the best organisations, are fallible and that mistakes are to be assumed. For harmed patients, blaming individuals is emotionally more rewarding than attacking institutions, but for two key reasons, the individual approach is poor. But, first and foremost, it is always the brightest who make the worst mistakes (error is not the monopoly of an unfortunate few). Furthermore, in addition to being

admissible, collapses appear to fall into repeated patterns. The framework plan, on the other hand, tackles preventable medical errors by techniques likely core elements such as team working, communication capacity, evidence-based protocols, and other approaches to treat. Errors in medicine have to be considered as an aspect of organizational success and quality treatment. Efficient response to accidents should be based on an inherent risk management approach so as to minimize the recurrence of preventable medical errors. Intervention in the area of drug mistakes, as e.g., modern hospital IT systems, a review method of eliminating unsafe medications from desks that are no longer required now, and training patients in the medication that they take lead to a percent reduction in medicine errors reaching the patient The management of mistakes providing point towards people opting into action to be carried out. The disclosure of errors to patient's friends, relatives, and hospital colleagues is of high difficulty to the majority of physicians but, while the gravity of error outcomes is the single most important factor within the selection of circumstances, the professional approach to error is deemed crucial for the assessment of errors at large, taking into account their consequences. A rational, participatory and accountable approach to the error decreases the likelihood of participants 'aiming in strong punitive measures against the subject by the incident in errors with a significant output.

ROLE OF CLINICAL PHARMACIST IN MANAGING MEDICATION ERRORS

Clinical pharmacists reduce the potential risks of the medication errors by providing the pharmaceutical care to the patients in the hospitals. It is the responsibility of the clinical pharmacists to review the medical charts in the ward by completing the patient's pharmacotherapy monitoring form and reported related drug therapy problems. Use of paper in medical records instead of using computerized registration of medication, unavailability of medical record for pharmacists in the hospital pharmacy, patient overload in teaching hospital, and consequently working overload of physician and nurses and unavailability or lack of treatment guidelines may be the cause of medical errors.

Participation in almost the entire drug phase, from delivery to patient administration, of clinical pharmacists can minimize medication errors and are beneficial to patient care. This can be done by taking part in special rounds of prescription by the clinical pharmacist and testing the various pharmaceutical measures.[7]

How Can We Avoid Prescribing Error?

The medical reports were screened by clinical pharmacists for prescription errors and addressed with the senior physician in control. Clinical pharmacist attended ward rounds additionally. Clinical pharmacists' interventions led to a significant reduction of prescribing errors which, contributing to a safer medication process.[8]

Reconciliation of medicines is to prevent drug mistakes including omissions, duplications, dose errors or medication. The new drugs should be ordered or current orders rewritten at every treatment change. Care transitions include changes in the community, program, practitioner or care level. This process comprises five steps:

1) develop a list of current medications;

2) develop a list of medications to be prescribed;

3) compare the medications on the two lists;

4) make clinical decisions based on the comparison;

5) communicate the new list to appropriate caregivers and to the patient.

Accurate and complete medication reconciliation can prevent multiple prescribing and administration errors. Failure to act reconciliation of drugs may be compounded by the practice of writing "blanket" orders, such as "resume pre-op medications," They are highly error prone and are known to result in adverse drug reactions.[9]

CONCLUSION

A medication error can be said to be failure in the treatment process that may cause harm to the patient or have the potential to lead to the harm. Medication error can be occurred due to prescribing error like inappropriate, irrational, ineffective prescribing of medication and may also occur due to the dispensing error like wrong dispensing of medication including dispensing of medication in wrong dose and dosage form and therapeutic duplication of the medication and also inappropriate labeling. In this case, it was done by drawing up scenarios and determining which would constitute an error under each of the definitions. It does not specify who makes the mistake-it may be a physician, a nurse, a pharmacist, a caregiver, or another; nor does it specify who is responsible for avoiding mistakes. It also involves the manufacture or compounding of a drug, its prescription, transcription (if applicable), distribution and administration, and the subsequent monitoring of its effects. The definition above, slightly modified, was the only definition that categorized all error scenarios and only error scenarios. Various definitions of drug errors have been tested, as all technical definitions should be. 'Harm' also implies 'lack of benefit' in the description, a type of failure of treatment. It is important to identify and correct a medicament error where it may lead to therapeutic failure or serious harm to the patient so that a medicament error can be avoided by improving the rationality of the prescription of the medicament and the proper dosage of the medicament can also be avoided, as well as by providing proper patient advice on the ad medicament. Chart analysis, computerized tracking, injury detection, and scanning evidence for allegations are the key approaches for identifying adverse events. Based on relevant references, the chart analysis is retrospective. The disadvantages of this approach are the challenge of

educating reviewers and the fiscal and human capital necessary.

Mainly clinical pharmacist provides pharmaceutical care to the patients thus reduce the occurrence of medication errors. Clinical pharmacist completes the patient's pharmacotherapy monitoring form and then perform the medication chart review and then reported any drug related problems. Clinical pharmacist should undertake special ward rounds and monitor any pharmaceutical measures. There are various guidelines available for medication errors and the purpose of these is to provide pharmacist various recommendations for the management and protection of the patients from various harm caused due to medication errors. These include planning for safe medication purpose, selection and procurements including formulary assessment and management, safety alert monitoring and medication shortage management. Careful storage of medicine in the pharmacy and the hospital setting helps to prevent the occurrence of mediational errors. The goals of detecting medication errors include the following:

- Promote a culture of safety to reduce harm from medication errors.
- Increase detection and reporting of medication errors and potentially hazardous drug–use situations.
- Explore and understand the root causes of and factors that contribute to medication errors.
- Educate practitioners about the system-based causes of errors and their prevention.
- Recommend methods to facilitate the implementation of organization-wide, system-based changes to prevent medication errors.
- Respond to potentially hazardous situations before errors occur.

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