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A Study to Examine the Medication Error, Causes and Reporting Behaviour as Perceived by Staff Nurses Working in the Selective Units of Dr. Ram Manohar Lohia Hospital, New Delhi

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Abstract

Medication errors may occur at any stage of prescribing, demonstrating, dispensing, preparation and administration. Medication errors can contribute to morbidity, mortality and increased health care cost. The aims of this study was to find the causes of medication errors, perceptions of staff nurses towards medication errors and identify the difference between I.C.Us and ward nurses with regard to perception of medication error in the selected units of Dr. R.M.L hospital. Quantitative Cross-sectional survey approach was selected. All the registered nurses who were working in the medical, surgical, paediatric ward and I.C.Us of Dr. R.M.L hospital and fulfilling the inclusion criteria were enrolled for this study. Non probability convenient sampling was done and 100 staff nurses were enrolled for study. Study results found that participants from the selected units of Dr R.M.L. Hospital are aware about the causes of medication errors and majority of them have a common view about reporting medication errors i.e. it has to be reported to the nurse manager but there was no incidental report or any other written document exists with the Nurse Manager indicating occurrence of medication errors.

Keywords: Medication errors; Morbidity; Mortality.

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Introduction

Medication misadventure can occur anywhere in the health care system from prescriber to dispenser to administration and finally to patient use, the simple truth is that many preventable errors are preventable. The subject of medication error has received more National attention recently than other time.[1] Pharmacist has long history of conducting research on medication errors, starting 40 years ago with a study that demonstrated errors are a much bigger problem than anyone realised. Medication errors may occur at any stage of prescribing, demonstrating, dispensing, preparation and administration.[2] Medication errors can contribute to morbidity, mortality and increased health care cost. In 2007 National Patient Safety Agency (NPSA) statistics shows that 59.3% of medication errors occur during administration to patient.[3]

Administration errors: If the drug that the patient got is different from the drug prescribed by the physician there comes the administration errors. It includes even taking of the expired drugs.[4] When the IV is the route of the administration the professionals should be more careful as the administration causes severe consequences.

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Avoiding: We can avoid this by verifying the patient details and make sure that the patient and prescription and drugs are present at one place.[5] Before administering the drug, other health care professional should check dose in order to avoid mistakes.[6]

Approximately 7000 death occurs each year and medication error occurs in just about 1 of every 5 doses given in the Hospital. There is at least 1death per day and 1.3 million people are injured each year due to medication error.[7] No study has been conducted in the past on nurse's perception about Medication Errors at Dr. R.M.L. Hospital, New Delhi. So results from this study will help us to know better perspectives about medication errors and recommendations that can be made for the prevention.[8]

Objectives of the study

(i) to find the causes and perceptions of staff nurses towards medication errors of medication errors in the selected units of Dr. R. M. L hospital

(ii) to identifying the difference between I.C.Us and ward with regard to medication error reported to sister in charge

(iii) to make recommendations of quality nursing service for preventing medication error

Materials and Methods

Research Design

Quantitative cross-sectional survey research approach was selected.

Setting

Present study on causes and nurses perception about medication error has been conducted in the selected units of R.M.L. Hospital which was formerly known as Willington Hospital in New Delhi has 984 beds. The hospital was originally founded, with only 54 beds, in the early 20th century by the British Raj for their government staff. In 1954, in the newly independent India, control of the hospital transferred to the Central Government's Ministry of Health and Family Welfare.

Sample and sampling method

All the registered nurses working in the medical, surgical, paediatric ward and I.C.Us of Dr. R. M. L hospital and fulfilling the inclusion criteria were enrolled. Staff nurses working in the selected units of Dr. R. M. L. Hospital, minimum period of 1 year experience and involved in the administration of medication were included. Non probability convenient sampling was selected and 100 staff nurses were enrolled for this study.

Measures

The Modified Gladstone survey was used to collect data for this study. This instrument measured: Nurses perceived causes of medication error (10 items), Percentage of drug errors reported to nursing sister (1 item), Types of incident that would be classified as Medication errors/Reportable to physicians o/Reportable using an incident report (6 items), Nurse views about reporting medication errors (6 items) and Nurses biographical data. Tool for the study is standardized. Instrument content validity was determined acceptable by Osborne, Blains, and Hayes (1999) and Gladstone (1995). In addition, Osborne et al established reliability using the test and retest method in their sample.

Results

According to the Table 1 maximum 40–60% i.e. (28) nurses reports to the Nurse Manager but there is no incidental report existing with the Nurse Manager showing the actual record.

According to the Table 2 the given situation in the tool majority of the Nurses were able to rule out drug error, whether to notify physician and do incident reporting. But in some situations they were not able to rule out which have serious implications which should be considered.

Table 1: Nurses perception regarding medication error.

% of all drug errors is reported to the nurse manager by the completion of an incident report	Frequency
0–20	16
20–40	27
40–60	28
60–80	22
80–100	7

Table 2: Nurses perception about medication error

Perception of nurses	Drug error		Notify physician		Incident report	
	Yes	No	Yes	No	Yes	No
1. Patient's misses his mid-day dose	56	44	90	10	78	22
2. Doses of iv antibiotics four hours late.	84	16	70	40	88	12
3. A patients receiving TPN feeding via an infusion pump is given 200 ml/ hour instead of Correct rate of 125 ml/hour for the first 4 hours of the 24 hours infusion.	75	25	74	20	86	14
4. A patient admitted with status asthmaticus on 08/13/97 at 2 a.m. Is prescribed ventolin nebulizers every four hours. The nurse omits the 6 a.m. Dose on 08/13/97 as the patient is a sleep.	70	30	64	36	79	21
5. A physician orders perpocet 1–2 tabs for postop pain every 4 hours. At 4 p.m. The patient complains of pain, request one pill and is medicated. At 6.30 pm the patient requests the second pain pill. The nurse administers the pill.	65	45	60	40	72	28
6. A patient is receiving a routine 9 a.m. Dose of digoxin every day. Yesterday's digoxin label was 1.8 (the high side of normal). A digoxin label was drawn at 6 a.m. Today. At 9 a.m. The nurse holds the digoxin because the lab value is not available at.	41	45	41	69	84	14

According to table 3 ICU nurses are more aware of medication errors as compared to Ward Nurses. Majority of the participants were in the age group of 25–45 and were female and had diploma in nursing and working on full time basis in rotation of three shifts and were medical ward. According to Nurses perception out of 10 causes, 2 causes i.e. (D–Drug errors occur when there is confusion between two drugs with similar names and E-Drug errors occur when the physician prescribes the wrong dose) are the most frequent cause of medication error. 1 out of 10 causes i.e. (drug errors occur when nurses are tired and exhausted) is the least frequent cause of medication error. Maximum 40–60% nurses reports to the senior nurse-incharge but there is no incidental report existing with the senior nurse incharge-showing the actual record. Majority of the Nurses were able to rule out drug error, whether to notify physician and do incident reporting. But in some situations they were not able to rule out which have serious implications which should be considered. ICU nurses are more aware of medication errors as compared to Ward Nurses. Ward nurses are able to notify physician but no incident report exist with the nurse manager. So, that there is lacking on the part of reporting medication error.

Table 3: Nurses views about reporting medication error

Views of nurses	ICU		Ward	
	Yes	No	Yes	No
1. I am usually sure what constitutes a medication error.	84	16	77.4	22.7
2. I am usually sure when a medication errors should be reported using an incident report.	100	0	8	92
3. Some medication errors are not reported because nurses are afraid of reaction they will receive from the nurse manager.	80	20	9.4	90.7

(Contd.)

Views of nurses	ICU		Ward	
	Yes	No	Yes	No
4. Some medication errors are not reported because nurses are afraid of the reaction they will receive from the co-workers.	48	52	82.7	17.4
5. Have you ever fail to report a drug error because you did not think the error was serious to warrant reporting?	76	24	62.7	47.7
6. Have you fail to report a medication error because you were afraid that you might be subject to disciplinary action or even lose your job.	84	16	67.7	47.7

Discussion

Nurses are assumed as a noteworthy part in diminishing prescription mistakes and much of the time direct medications in patients' social insurance settings (Hsaio G.Y, et al., 2010).[9] In the same vein, they are the last to defend against pharmaceutical mistakes (Despins L.A, et al., 2010).[10] Reasons behind the errors' occurrence were reported as the following based on the present study: no easy look up information on medication errors, illegible medication order, similar medication for many patients, look-alike medicines, frequent substitution of drugs and the pharmacist's unavailability for 24 hours. Be that as it may, in another overview directed via Cohen et al. (2003), five notable explanations behind what initiated or expanded the danger of pharmaceutical mistakes were stated; diversions and intrusions amid MA, lacking staffing and high nurse/patient proportions, unintelligible prescription requests, mistaken measurements count and comparative medication names and bundling (Cohen H, et al., 2003).[11]

Consequently, the Joint Commission distributed a list of {lookalike/sound-alike} medications that are viewed as the utmost dangerous pharmaceutical terms crosswise over locations. The investigation was led by Mrayyan et al. in 2007 upheld this discovery and recommended that the medicines' names and bundles might be incomprehensibly the social insurance work force due to putting essential data unmistakably and little text dimension of showing content, which may prompt poor comprehensibility (Mrayyan M.T, et al., 2007).[12] The consequences of the factor examination uncovered distinctive classifications of reasons for why medication administration errors remain unreported that were distinguished in this study. These classes include, expectation that administration of medicine by nurses will be accurate, error definition reasons, fear from the patient, family, physician and nursing administration, errors is not important enough to be reported and no positive feedback is given by patients.

Conclusion

According to the results of the study all the study participants i.e. staff nurses from the selected units of Dr R.M.L. Hospital are aware about the causes of medication errors and majority of them have a common view about reporting medication errors i.e; it has to be reported to the nurse manager but there was no incidental report or any other written document exists with the Nurse Manager indicating occurrence of medication errors.

Limitations

The study was limited to a Dr. R.M.L. Hospital which restricts the applications of the findings. Study was limited to selective units of Dr. R.M.L. Hospital. The study sample was chosen conveniently. The study sample was limited to 100 staff nurses.

Recommendations

Recommendations for Nurse Manager for monitoring and managing medication error

- Conducting regular session of planned clinical demonstration of medication administration with the staff nurses.
- Conducting various teaching sessions and research studies on the different aspects of medication error for staff nurses.
- There should be the written guidelines for diluting and administering medication and Nurse Manager should have it so that it can

be referred whenever required.

- The nursing manager should take initiative to supervise staff nurses related to medication administration.
- All nurse managers should maintain records of incidental reports about medication error occurring and take necessary action so that same error should not be repeated.
- Nurse Manager should encourage their staff nurses to report medication error without any fear of losing job or disciplinary action. Medication errors should be identified and documented their causes studied in order to develop systems that minimize recurrence. Several error monitoring techniques exist (e.g.anonymous self-reports, incident reports, critical incident technique, and disguised observation technique) and may be applied as appropriate to determine the rates of errors.
- Monitoring programs for medication errors should consider the following risk factors:

1. Work shift (higher error rates typically occur during the day shift).
2. Inexperienced and inadequately trained staff.
3. Medical service (e.g., special needs for certain patient populations, including geriatrics, pediatrics, and on-cology).
4. Increased number or quantity of medications per patient.
5. Environmental factors (lighting, noise, and frequent interruptions).
6. Staff workload and fatigue.
7. Poor communication among health-care providers.
8. Dosage form (e.g., inject able drugs are associated with more serious errors).
9. Type of distribution system (unit dose distribution is preferred; floor stock should be minimized).
10. Improper drug storage.
11. Extent of measurements or calculations required.
12. Confusing drug product nomenclature, packaging, or labeling.
13. Drug category (e.g., antimicrobials).
14. Poor handwriting.
15. Verbal (orally communicated) orders.
16. Lack of effective policies and procedures.
17. Poorly functioning oversight committees

Recommendations for Nurses

- Nurses who practice in organized health-care settings should be familiar with the medication ordering and use system.
- All drug orders should be verified before medication administration.
- When standard drug concentrations or dosage charts are not available, dosage calculations, flow rates, and other mathematical calculations should be checked by a second individual (e.g., another nurse or a pharmacist)
- Patient identity should be verified before the administration of each prescribed dose. When appropriate, the patient should be observed after administration of the drug product to ensure that the doses were administered as prescribed and have the intended effect
- All doses should be administered at scheduled times unless there are questions or problems to be resolved. Medication doses should not be removed from packaging or labeling until immediately before administration. The administration of medication should be documented as soon as it is completed.
- The drug distribution system should not be circumvented by "borrowing" medications from one patient (or another hospital area) to give to a different patient or by stockpiling unused medications
- If there are questions when a large volume or number of dosage units (e.g., more than two tablets, capsules, vials, or ampoules) is needed for a single patient dose, the medication order should be verified. Consult with the pharmacist and prescriber as appropriate.
- All personnel using medication administration devices (e.g., infusion pumps) should understand their operation and the opportunities for error that might occur with the use of such devices.
- Nurses should talk with patients or caregivers to ascertain that they understand the use of their medications and any special precautions or observations that might be indicated. Any counseling needed should be provided before the first dose is administered, when possible.

- When a patient objects to or questions whether a particular drug should be administered, the nurse should listen, answer questions, and (if appropriate) double check the medication order and product dispensed before administering it to ensure that no preventable error is made (e.g., wrong patient, wrong route, and dose already administered). If a patient refuses to take a prescribed medication, that decision should be documented in the appropriate patient records.

Recommendations related to wrong prescriptions

- Active interventions aimed at reducing prescription errors and prescribing faults are strongly recommended
- These should be focused on the education and training of prescribers and the use of on-line aids.
- The complexity of the prescribing procedure should be reduced by introducing automated systems or uniform prescribing charts, in order to avoid transcription and omission errors.
- Feedback control systems and immediate review of prescriptions, which can be performed with the assistance of a hospital pharmacist, are also helpful.
- Audits should be performed periodically.
- Improving quality of written prescriptions in a general hospital.
- Intervention strategies should be primarily focused on education and the creation of a safe and cooperative working environment, to strengthen defence systems and minimize harm to the patient.
- The FDA, is encouraging people to talk with their physicians to ensure that they have a complete understanding about their prescription before leaving the doctor's office, and to verify the information with the pharmacist before the medication is dispensed.

Recommendations related to confusion of similar names of medicines

- The NCCMERP recommendations encourage doctors to write both brand and generic names on prescriptions.
- Generic name confusion also has led to regulatory action, as well as to pharmacy practice recommendations.

Organizational and Departmental Recommendations

- Organizational policies and procedures should be established to prevent medication error.
- Development of the policies and procedures should involve multiple departments, including pharmacy, medicine, nursing, risk management, legal counsel, and organizational administration.

Recommendations for Pharmaceutical Manufacturers and Approval Organization

- Look-alike or sound-alike trademarked names and generic names should be avoided.
- Similar proprietary appearances of packaging and labeling should be avoided, because look alike products contribute to medication error
- Supervisors, department managers, and appropriate committees should periodically review error reports and determine causes of errors and develop actions to prevent their recurrence (e.g., conduct organizational staff education, alter staff levels, revise policies and procedures, or change facilities, equipment, or supplies.
- Special instructions should be highlighted on labeling such as the need for dilution before administration
- The most prominent items on the product label should be information in the best interest of safety (e.g., product name and strength). Less prominence should be given to company names or logos.
- Drug manufacturers are encouraged to make dosage forms available commercially in unit dose and unit of-dispensing containers, as well as bulk packaging, to facilitate their appropriate use in all practice settings.
- Drug manufacturers must communicate with health-care providers (i.e., pharmacists, physicians, and nurses) when changes are made in product formulations or dosage forms.

Recommendations were offered for the future research

- A similar study can be replicated in a large sample to validate data and generalize the findings.

- A similar study can be done taking more than one Hospital.
- A similar study can be done by using Hindi data for whom unable to understand English.
- A similar study can be taken by involving staff nurses regardless of specifying selective units.
- A follow up study can be done to compare the efficiency in the services provided and efficiency in the practice.

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