



GOOD PRESCRIPTION: A FIRST STEP TOWARDS THE PREVENTION OF THE MEDICATION ERRORS

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ABSTRACT

STUDY DESIGN: Retrospective analysis of 100 prescriptions of medications.

RESULTS: Only 32% prescriptions were had generic names of medications. Right dose and right frequency of medications were missing in 14% and 35% respectively. Ten percent of prescriptions were having illegible handwriting. History of allergy to any was noted in 25% of prescriptions.

CONCLUSIONS: Even though Medical Council of India proposed standard prescription format; prescription errors are found to be very common.

KEYWORDS : Prescription pattern, medication errors, medical errors.

INTRODUCTION:

The Institute of Medicine (IOM, USA) released a report "To Error is Human: Building a Safer Health System" in 1999; proclaimed that medical errors caused 44,000 to 98,000 of preventable deaths per year. The causes of errors were not the careless doctors and nurses, but defective health care systems (Carol, 2008). However, the medication errors were the common cause of medical errors. A medication error is defined as any error occurring in the medication use process i.e., prescription, dosage administration, or failure to give (by provider) or take (by patient) a medicine. Adverse drug events (ADEs) defined as any injury caused by a medication; are estimated to injure or kill more than 770,000 people in hospitals annually and prescribing errors are the most frequent source and national hospital expenses to treat patients who suffer ADEs during hospitalization are estimated at between \$1.56 and \$5.6 billion annually (Lesar, 1997). Adverse drug event rate was 6.5% for 100 admission and 28% of the adverse drug events were potentially preventable (Carol, 2008). Indian Medical Council (2002); states that every physician should, as far as possible, prescribe drugs with generic names and he/she shall ensure that there is a rational prescription and use of drugs. Failure to adhere the standard prescription practices and administration of the medications were the commonest reasons for medication errors.

Vaziri (2019) reported medication errors of 27% to 53% in the meta-analysis of medical errors. The common types of medication errors were found to be wrong dose, wrong drug and wrong route.

The implications of medication errors are increased length of stay, additional hospitalization cost, mortality, job dissatisfaction and increase in malpractice suites.

A preventable ADE is an injury caused by a medication that is caused by an error in medication process. Example of preventable ADE would be if a patient develops an anaphylactic reaction to an antibiotic to which he or she is known to be allergic. It has been observed that, most of the general practitioners do not adhere to the standard practice of prescription of medications. The medication errors are most common due to the prescription, and at the time of administration. There is national policy of reporting of adverse drug reactions but not medication errors; therefore, the exact magnitude of the medication errors in Indian health sector is almost unknown.

This study was conducted to know the existing pattern of prescriptions in a tertiary care hospital Mumbai.

The standard prescription practice of medication (Carol, 2008) When prescribing, physician should seek to avoid missing any essential components of a medication order.

The standard prescription practice of medication should follow the "Five Right" -

Right name of the drug

Right dose (per kg body weight, relevant to elderly and children)

Right route

Right frequency

Right patient.

The order of the medication should be...

Complete

Legible

Should have signature with the date and time.

History of drug allergy and on any current medications should be asked to every patient and to be noted in case paper.

Every physician should prescribe drugs with generic names and not the brand names (Medical council of India, 2012).

OBJECTIVES:

To study the prescription pattern

To analyse and compare with the standard practices.

METHODOLOGY:

One hundred medication prescriptions of indoor patients were analysed to know the frequency of the pattern of prescriptions. Data were collected of prescriptions of the indoor patients especially from emergency care department, since critical care service areas are prone for prescription errors due to case load. All types of medications were included like antibiotics, analgesics and other drugs used during critical care. Once a prescription of certain medication was considered; same type of medication from the same case paper was excluded. No prescription from neonatology unit was obtained.

The variables studied were...

- 1) Wrong dose
- 2) Wrong frequency
- 3) Wrong route
- 4) Wrong drugs
- 5) Illegible prescription

Descriptive statistics used to analyse the data by frequency and percent of variables, using SPSS Software, Version 16.

OBSERVATIONS:

History of drug allergy was noted only in 25% of case records of 100 patients

Table 1: Frequency of prescription pattern of medications

Prescription	Right Frequency	Wrong Frequency
Name of the drug (Generic)	32	68
Dose	86	14
Route	100	00
Frequency	65	35
Legible prescription	90	10

Table 1. shows that, of the 100 medication prescriptions, 32% of the drugs were prescribed as their generic names, while 68% of medications were prescribed with the trade names.

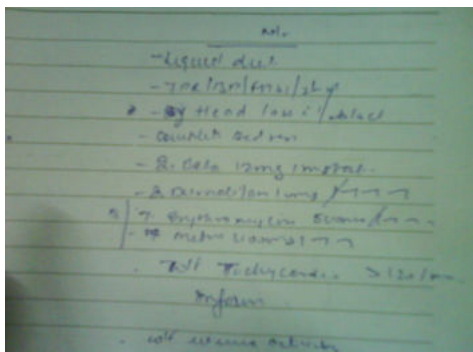
The dosage and route of the drug were right in 86% and 100% of prescriptions respectively. However, the frequency of the medication was wrong in 35% of prescriptions.

The order of medication was incomplete in 22% of prescriptions and 10 % of the orders were illegible. Sixty-eight percentages of prescriptions had no signature of doctor; while 8 of the 32 of signatures (25%) were illegible. No time had written in 48% of prescriptions.

We did not observe any adverse drug event during the data collection period.

Examples of prescription patterns:

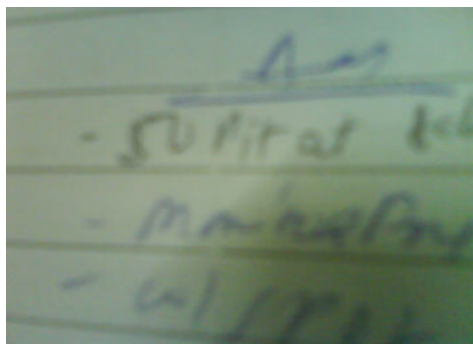
Fig.1.



Trade name of the drug and frequency were wrong. Having prescribed I-I-I-I this type of frequency which is wrong; it should have been either QID or four times a day.

The order is incomplete.

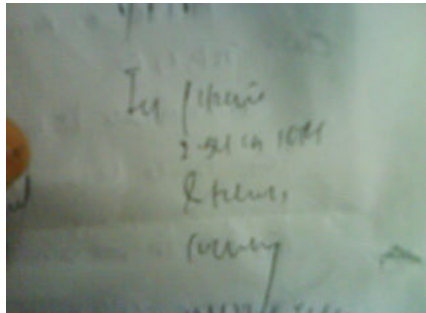
Fig. No.2



It is 5U Pit at It should have been Inj. Pitocin 5 unit.

The unit “U” is merged with the number 5; therefore, it could have been easily mistaken as 50 the highest dose. Therefore, instead of writing U, it is desirable to spell as unit to avoid the dosage misinterpretation and further errors.

Fig. No.3



Illegible prescription
Incomplete order.

DISCUSSION:

“Poison in small quantity may act as a medicine and medicine in large quantity may act as poison.”

This holds true for medication errors due to over dosages of drugs because of illegible prescription and failure of verification during administration. Drugs like oxytocin and insulin are labelled as hazardous drugs; error in either prescription or administration may cause serious consequences.

The US, Food and Drug Administration (2000), had received more than 95,000 reports of medication errors It is mandatory to ask the all patients the history of any drug allergy and to note on case papers. This is the first step towards the prevention of adverse drug reactions. In our study, history of drug allergy was noted in only 25% prescriptions. Example of preventable adverse drug events would be if a patient develops an anaphylactic reaction to which he /she is known to be allergic.

In the present study, 32% of the drugs were prescribed with generic names and 68% with trade names. Phalke (2011) found not a single prescription with generic name, while 44% to 65% prescriptions had generic names (Ahmad,2014).

We observed that, 14% of prescriptions had wrong dose. Zipare(2020) reported wrong dose in 23% of persecutions and Nadiya (2012) observed no information about dosage in 22% of prescriptions. Since Zipare's (2020) study was from intensive care unit, those service units are prone to medication errors. Phalke (2011) observed 27% of prescriptions having wrong dose, however her study was from rural area.

In our study,35% of prescriptions had wrong frequency of medication, while Zipare (2020) and Ahemad (2014) observed missed frequency in 1.5 % and 5% respectively. The high rate of missing frequency in our study, may be due to junior residents do prescribe the medications and often they are new to every speciality.

There were 10% of illegible prescription in our study. Phalke (2011) observed 17.6% and Zipare (2020) 18%. Doctors are often stereotyped for their illegible handwriting. Hon'ble Allahabad High court imposed a fine of rupees 5,000/- as cost on doctor for illegible hand writing (Apoorva,2018).

Although, Medical Council of India, proposed model format for drug prescription; history of drug allergy and whether patient is taking any medications. Those are the two important factors for prevention of medication errors and drug-drug interactions.

Incorporation of technology in medication prescription would help in preventing medication errors related to illegible hand writing, confusion about dosages etc.

Though we did not observe any adverse drug event during our study but there were great potential chances to happen. Contributing factors could be nurse distractions, workload, inexperienced staff, inadequate staffing, emergent clinical situations and flawed system. Errors in medication use processes are due to combination of human factors and system issues.

Use of technologies like Electronic Prescribing, Computerized Physician Order Entry (COPE), Barcode technology are of great help.

This technology aids in ensuring completeness of the medication orders. Another benefits of the computerized order entry is the ability to perform – important safety checks, such as drug allergy, drug-drug interactions patients characteristics.

However, there are some barriers (Carol,2008) like...

- Financial barriers
- Lack of administrative policies.
- Lack of physician comfort with adopting new technology
- Desire to maintain the status quo
- Lack of recognition.

CONCLUSIONS:

- 1) All service providers should make aware of the MCI guidelines and advised to comply with.
- 2) Inpatient medication administrations, a nurse must follow a standard protocol of verifying patient's identity, the correct drug name, dose, route and time.

- 3) Educate the patient about medication regimen.
- 4) Instruct patient how & when to take medication.
- 5) When prescribing, physicians should seek to avoid missing any essential components of a medication order. Complete legible medication orders should contain the following components: name of the drug, dose, route frequency of administration and patients' weight and age (when relevant to dose as with elderly & children).

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