Original Article

Assessment Of The Current Prescribing Practices And Incidences Of The Prescription Error In A Tertiary Care Hospital

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Abstract

Medication errors are one of the foremost common sorts of therapeutic blunder. Roughly 1–2% of conceded patients to the healing centres are endured since of the medicine blunders, the lion's share of the mistake happens at the time of endorsing, these mistakes can be possibly prevented. Prescription errors are common, by the help of daily systematic reviews of medication charts which suggest that as many as 50% of hospital admissions and 7% of medication orders are affected. A study of prescription pattern is an important tool to determine rational drug therapy, maximize utilization of resources and to reduce prescription errors. The prescriber should follow the proper guidelines for writing a prescription in order to minimize prescription errors. A prospective observational study was conducted for a period of 6 months in inpatients department of medicine and pulmonary ward of Shri Mahant Indresh hospital, Dehradun. A total of 217 subjects were observed from the medicine and pulmonary wards (IPD). Out of which 175 subjects were male and 42 were female, as compared to females, male's patients were having more prescription errors (75.5%). An antibiotic was the class involved in majority of prescription errors. No generic drugs were prescribed. Abbreviations and allergy were the type of prescription errors identified with more incidences of error as compared to others. The study concluded that the lack of close supervision and absence of clinical pharmacist could have make things worse. Introduction of quality assurance measures and routine checks with close supervision of the prescribing intern physicians are strongly recommended.

INTROUCTION

Medication errors are one of the foremost common sorts of therapeutic blunder. Roughly 1–2% of conceded patients to the healing centres are endured since of the medicine blunders, the lion's share of the mistake happens at the time of endorsing, these mistakes can be possibly prevented[1]. Mistakes get in each step of pharmaceutical utilize prepare beginning i.e. endorsing, translating, apportioning, regulating and checking its impact. The reason behind the event of mistake can be due to mental slips, destitute execution and need of information. The drug specialist with doctors, medical caretakers, directors has critical part to look at and make strides healthcare framework for guaranteeing the persistent security. The National Coordinating Council for Medication Error Reporting and Prevention (NCCMERP) has characterized medicine errors (MEs) as, "Any preventable occasion which will cause or lead to improper medicine use or understanding hurt. Whereas the medicine is within the control of the well-being care proficient, quiet, or consumer". American Society of Healing centre, drug specialists' rules for MEs expressed that incidence of MEs isn't precisely known since of varieties in numerous definitions of ME, diverse strategies, or subject populaces. In India, thinks about exhausted Uttarakhand and Karnataka have archived ME rate to be as tall as 25.7% and 15.34%, individually, in patients conceded within the hospital[2-4].

Prescription errors that happen in clinics have been a source of concern for a long time. For lessening the issue of blunders fifty a long time prior, analysts were highlighting the number of mistakes and planned frame works. In spite of the mediating decades, and impressive alter to the conveyance of care happen, we are still concerned with measuring the predominance, understanding the causes and executing potential arrangements to the issue of endorsing blunders in healing centers[4].Endorsing mistakes are common, by the assistance of day by day efficient surveys of medicine charts which propose that as numerous as 50% of clinic confirmations and 7% of medicine orders are influenced. In later thinks about, roughly 9-15% of medicine orders for clinic in patients was influenced by the endorsing mistakes within the UK. Over one-third of patients were found to have an endorsing blunder happening at clinic confirmation within the USA. Endorsing blunders are too common in essential care, influencing 37% of medicines within the USA, and one in eight patients (1 in 20 medicine things) within the UK. A ponder within the Netherlands assessing me dicineexclusion blunders in elderly patients conceded to clinic detailed unfavourable results in 21% of patients. Variables which may anticipate

medicinem is takes, or avoid miss takes from coming to the understanding, may incorporate electronic end or sing cautions, and medicine audit by clinical pharmacists[5].World Health Organization (WHO) character ized judicious utilize of drugs as “patient’s get medications fitting to their clinical needs, in dosages that meet their claim personecessities for a satisfactory period of time, at the most reduced taken a toll to them and their community”. To advance judicious medic ate utilize in creating nations, appraisal of medicate utilizede signs with the WHO medic ate utilize pointers is getting to be progressively necessary[6].WHO created Medicine Utilize Markers, counting Medicine Markers with a point to assess the administrations given to the populace in respects to medication[7].

Drug utilization studies seek to monitor, evaluate and suggest modifications in the prescribing practices with the aim of making the medical care rational and cost effective. A study of prescription pattern is an important tool to determine rational drug therapy, maximize utilization of resources and to reduce prescription errors[8].The prescriber should follow the proper guidelines for writing a prescription in order to minimize prescription errors[9]. One of the most common and preventable causes of medication errors is the ambiguous abbreviation. Clinicians use many abbreviations for the timesaving purpose; however they can be prone to misinterpretation. For ensuring the patient safety, orders must be clear and free from ambiguity. In order to reduce errors, New South Wales, Australia, Therapeutic Advisory Group (NSW TAG) has made a guideline on acceptable abbreviations[10].

Indicators of prescribing practice measure the performance of health care providers in several key dimensions related appropriate use of drugs. WHO evolved the chief prescribing indicators for the measurement of the degree of polypharmacy, the tendency to prescribe drugs by generic name and the overall level of use of antibiotics and injections[11]?

MATERIALS & METHODS

Study design &site: A prospective observational study was conducted for a period of 6 months in the inpatients department of Medicine and Pulmonary ward of Shri Mahant Indiresh Hospital, Dehradun.

Ethical approval: This study was approved by the Institutional Ethical Committee.

Data collection process: The study was carried out on the patient admitted in the medicine & pulmonary ward of Shri Mahant Indiresh Hospital, Dehradun by using the data collection form to collect the data. All the demographic details of the patient were collected. The cause of error due to prescribing and assessment of the current prescribing practices was recorded by the medication chart which was assessed & critically evaluated for the prescription errors.

Study parameters: general prescription pattern

Every individual patient’s medication chart was analysed by using WHO drug use indicators to evaluate the current prescribing practices[9].

- ✓ Total number of prescriptions
- ✓ Total number of drugs prescribed
- ✓ Average number of drugs per prescription
- ✓ % of drugs prescribed by generic name
- ✓ % of prescriptions containing antimicrobial agents
- ✓ % of prescriptions with drugs for antacid
- ✓ % of prescriptions with inject able preparations
- ✓ Percentage of prescriptions with tablet dosage form

Prescription errors

Prescription errors occur as a result of prescription writing process which was analysed by self-scrutiny method on the basis of types of prescription errors i.e. Allergy, Past medication history, Wrong order, Illegible hand writing, Dose, Route, Dr name & sign, Date & time, SOS drug indication, Prone abbreviations, Capital letters.

RESULTS AND DISCUSSION

A total of 217 subjects were observed from the medicine and pulmonary wards (IPD). Out of which 175 subjects were male and 42 were female. The percentage of male subjects and female subjects was calculated 80.6% and 19.3% respectively. Subjects were categorized in four groups as per there age (19-30, 31-45, 46-60, and 61-80). Maximum subjects (31%) were found in age group of 31 to 45 years.

Prescription pattern analysis

The current prescribing practices or the prescription pattern analysis was done using WHO drug use indicators and for this the total number of prescriptions is taken 217, Total number of drugs prescribed was 1012. Average number of drugs prescribed per prescription was observed to be 4.66.In pattern analysis maximum (21.24%) prescriptions was found containing antacid followed by 16.7% prescriptions was found containing antibiotics. Similarly, Maximum (44.3%) prescriptions was observed containing tablet dosage forms followed by 17.5% prescriptions was observed containing injectable as mentioned in the Table1.

Table 1: Prescription pattern analysis

CHARACTERISTICS	VALUES
Total no of prescription	217
Total no of drug prescribed	1012
Average no of drugs per prescription	4.66
Percentage of drugs by generic name	0
Percentage of prescriptions containing antibiotics	170 (16.7%)
Percentage of prescriptions containing antacid	215 (21.24%)
Percentage of prescriptions with injectable preparations	178 (17.5%)
Percentage of prescriptions with tablet dosage form	449 (44.3%)

Table 2: Drug class involved in the prescribing error

Drug class	Number of patients with prescription error
Antihistamine	25 (17%)
Antibiotics	37 (26%)
Bronchodilators	22 (15%)
Anti-diabetic	15 (10%)
Immunosuppressant	11 (7%)
Anti- malarial	8 (5%)
Anta-acid	21 (15%)

Prescription error

The male patients were more as compared to females and it was clear from the data that prescription error was observed more in male patients (75.5%) as compared to females (24.4%). Subjects were categorized in four groups as per there age (19-30, 31-45, 46-60, and 61-80). Maximum subjects (31%) were found in age group of 31 to 45 years and prescription errors were observed more in the age group 31-45 (40.2%). On the basis of the hospital stay of the patients, length of hospital stay categorised in to four groups i.e. 2-4, 5-7, 8-10 and 11-16. Out of all 120 (55%) patients were in the group 2-4 and the number of patients with prescription error were more in the group 8-10 i.e. 43 (30.9%). So it was clear from the data that as the length of the hospital stay of the patient's increases the number of patients with prescription error increases as mentioned in the table 3.

On the basis of analysis of diagnosis it was observed that the patients with Diabetes mellitus(DM) were more i.e. 55 (25.3%) and Urinary tract infection(UTI) patients were observed with more number of prescription error i.e. 35 (25%) after that DM with 29 (20.8%) and Chronic obstructive pulmonary disease (COPD) with 28 (20%). The majority of incidences of the prescription error was prone abbreviation (30.9%), allergy (16.5%) and illegible handwriting (14.3%), some other incidences were also observed as shown in the graph (figure 1). The most common factors involved in the prescription errors was prone abbreviation (30.9%), allergy (16.5%), illegible handwriting (14.3%) and wrong order/ capital letters (12.9%). After observing all the drug classes it was seen that antibiotics was the class in which more number of patients with prescription error observed i.e. 37 (26%) followed by antihistamine 25 (17%) and bronchodilators 22 (15%).

Table 3: Relation between demographic details & prescription error

Characteristics	Number of patients	Number of patients with prescribing error	Error in percentage
Gender Male	175	105	75.5
Female	42	34	24.4
Age 19-30	39	29	20.8
31-45	68	56	40.2
46-60	52	37	26.6
61-80	58	17	12.2
Length of stay 2-4	120	25	17.9
5-7	43	34	20.4
8-10	30	43	30.9
11-16	24	37	26.6

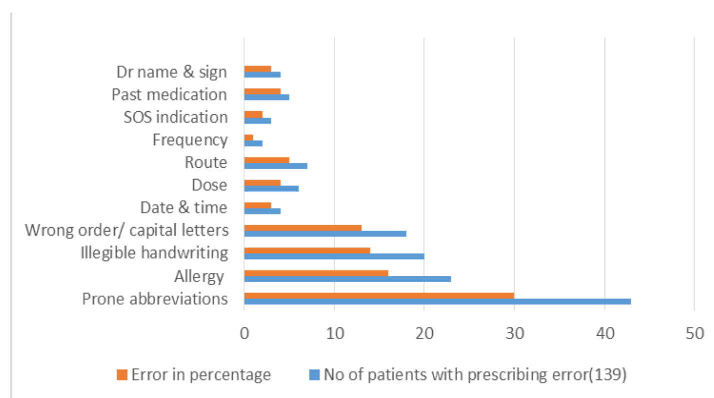

Figure 1: Incidences of prescription error

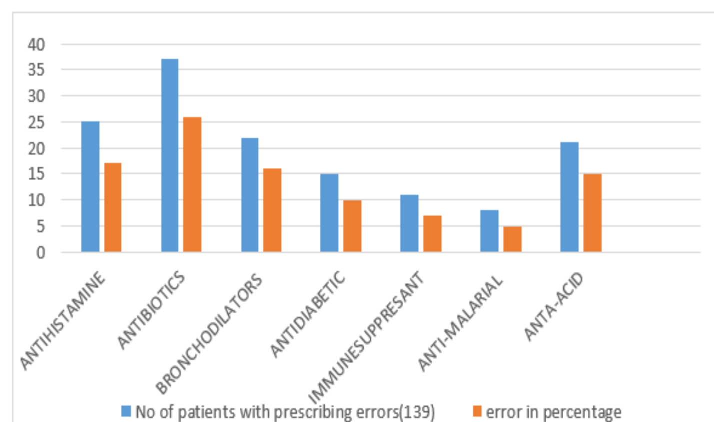

Figure 2: Drug class involved in the prescription error

CONCLUSION

The study concluded that in general rate of end or sing mistake is 64.05% without causing any harm to the patients. The errors reported clearly show that there are various reasons behind prescription errors. Medication errors at the prescribing phase were highly prevalent for the inpatients in the studied hospital. Majority of the observed prescribing error were found with drugs belonging to the class of antibiotics (26%), antihistamine (17%), bronchodilators & antacid (15%). Polypharmacy was observed due to over prescription of antibiotics. On the basis of analysis it was observed that the type of prescription error in which more number of incidences of prescription error identified was abbreviations (30%) followed by allergy (16%), illegible handwriting (14%) and wrong order/ capital letters (13%), this can be due to low uptake of NSWTAG guidelines that's why there is a need to follow proper guidelines so that health care professionals not use the error prone abbreviations. The lack of close supervision and absence of clinical pharmacist can make things worse that's why there is a need for the involvement of the clinical pharmacists in the health care team of the hospital. Introduction of quality assurance measures and routine checks with close supervision of the prescribing intern physicians are strongly recommended.

REFERENCES

1. Dean, B., Schachter, M., Vincent, C., Barber, N., and Prescribingerrors in hospital inpatients: their incidence and clinical significance. Qual. Safety Health Care, 2002; 77: 340–344.
2. Mateti UV, Sheikh D, Kabekkodu S, Sanal T, Assessment of medication errors and adherence to WHO prescription writing guidelines in tertiary care hospital. Future journal of pharmaceutical sciences 2017; 3:60-64
3. Patel N, Desai M, Shah S, Patel P, Gandhi A, A study of medication errors in a tertiary care hospital, Perspectives in Clinical Research,2016; 7: 168-173.
4. Tully MP, Prescribing errors in hospital practice, British journal of clinical pharmacology 2012.
5. Seden K, Kirkham JJ, Kennedy T, Lloyd M, James S, Memanus A, Ritchings A, Simpson J, Thornton D, Gill A, Coleman C, Thorpe B, Khoo SH, Cross sectional study of prescribing errors in patients admitted to nine hospitals across north west England. BMJ open 2013; 3:1-15.
6. WHO. The rational use of drugs. Report of a conference of experts, Nairobi, 25–29 November 1985. Geneva: World Health Organization; 1987.
7. Aravamuthan A, Arputhavanan M, Subramaniam K, Chander S.J.U, Assessment of current prescribing practices using World Health Organization core drug use and complementary indicators in selected rural community pharmacies in Southern India, Journal of Pharmaceutical Policy and Practice, 2017; 10:1.
8. Sultana F, Rahman A, Paul T.R, Rashid M, Prescribing Pattern and Prescription Errors Study at a Tertiary Care Hospital of Bangladesh, Bangladesh pharmaceutical journal, 2015;18(1): 20-24.
9. Nesar S, Shoaib MH, Rahim N, Iffat W, Shakeel S, Bibi R, Prescription writing practices and errors in prescriptions containing cardiovascular drugs especially ace inhibitors in Karachi, Pakistan, Asian journal of pharmaceutical and clinical research, 2015; 8(4): 53-55.
10. Morissey H, Ball P, Medication errors: Medication orders with error prone Abbreviations, J Nurs care 2014; 3:5.
11. Lenjisa J.L, Fereja TH, A Retrospective Analysis of Prescribing Practices through WHO Prescribing Indicators at Four Selected Hospitals of West Ethiopia, Journal of Bio analysis & Biomedicine, 2014; 6(4): 029-032.