AN ASSESSMENT OF RATIONAL DRUG USE AND EVALUATION OF MEDICATION ERRORS IN PUBLIC SECTOR HOSPITALS

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Abstract

Objectives: The objective of this study was to assess the prescription pattern by Medical practitioners and to analyze the types of medication errors observed in public sector Hospitals. Methods: Trainee Pharmacists during internship in my supervision were assigned to examine the prescriptions for drug prescription patterns as well as the same prescriptions and patients were examined for medication errors in three public sector hospitals in the city using a check list and patients’ interviews. The results were collected from 2400 prescriptions/patients. The study period was from July, 1st 2014 to September, 10th 2014.

Results: The results showed that, the average consultation and dispensing time was very short (4 Minutes). The mean number of drugs per prescription was 5. The percentages of prescriptions with antibiotics, analgesics, steroids and injections were 88%, 64%, 13% and 12% respectively. Further, we have observed 1012 medication errors out of 2400 only in drug administration. In each category the medication errors were omission: 391(38.6%), time: 405(40%), unauthorized drug: 84(8.3%), wrong rate: 71(7%), wrong route: 41(4.1%) and wrong dosage form: 20(2%).

Conclusion: We recommend that efforts should be made to improve rational drug use practices in Hospitals. Regular training programs should be organized for health care professionals to promote the concept and practice of rational drug use and to overcome these types of medication errors which lead to about 40% accidents and incidents in drug administration.

Key words: Rational Drug Use, Medication errors

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ABSTRACT
The objective of this study was to assess the prescription pattern by Medical practitioners and to analyze the types of medication errors observed in public sector Hospitals. It is a descriptive study using the direct observation and interpretation analysis method. In this study, we have studied various indicators including prescribing pattern, patient care indicators and medication errors. The average consultation and dispensing time was very short (4 Minutes). The mean number of drugs per prescription was 5. The percentages of prescriptions with antibiotics, analgesics, steroids and injections were 88%, 64%, 13% and 12% respectively. 1012 medication errors were identified out of 2400 patient medications only in medication administration. In each category the medication errors were omission: 391(38.6%), time: 405(40%), unauthorized drug: 84(8.3%), wrong rate: 71(7%), wrong route: 41(4.1%) and wrong dosage form: 20(2%). The health care professionals involved in these medication errors were nurses and the reason was lack of Hospital Pharmacists in each nursing unit.

INTRODUCTION
Rational drug use refers to patients receiving medications appropriate to their clinical needs, in doses that meet their individual requirements, for an adequate period of time and at low cost to them and their community.[1-8].To assess drug use problems in a health care facility, WHO defined certain core drug indicators into three types: a) Patient indicators which includes: average consultation time, average dispensing time, percentage of drugs actually dispensed and percentage of drugs adequately labeled and patient knowledge of correct dosage; b) Facility indicators: availability of copy of essential drug lists or formulary and the availability of key drugs; and c) Prescribing indicators: average number of drugs per prescription, percentage of drugs prescribed by generic name, percentage of drugs with antibiotic prescribed, percentage of drugs with injections.[9]. Medication error, in hospitals is a big and increasing problem, which has been considered as a result of human errors. Hospitals have been considered, as the most complex organizational management challenges [10]. The Pharmaceutical industry now, produces an ongoing stream of new potents and potentially toxic drugs for use in hospitalized patients under close supervision. Medication errors, in this complex setting, are a long-standing problem, whose true scale may not be fully known [11]. This error harms included death, long-term disabilities and severe pain. Inpatient medication errors may be more frequent because sicker, more complex patients are being admitted and they receive more care during the shorter time they spend in Hospitals. Medication errors have been represented as active failures in the medication management process of prescribing, ordering, dispensing, administering and monitoring patient medications [12].

METHODOLOGY
Trainee Pharmacists during internship in my supervision were assigned to examine the prescriptions for drug prescription patterns as well as the same prescriptions and patients were examined for medication errors in three public sector hospitals in the city using a check list and patients’ interviews. The results were collected from 2400 prescriptions/patients. The study period was from July, 1st 2014 to September, 10th 2014.
RESULTS

The results showed that, the average consultation and dispensing time was very short (4 Minutes). The mean number of drugs per prescription was 5. The percentages of prescriptions with antibiotics, analgesics, steroids and injections were 88% (2112), 64% (1536), 13% (312) and 12% (288) respectively. Further, we have observed 1012 medication errors out of 2400 only in drug administration. In each category the medication errors were omission: 391(38.6%), time: 405(40%), unauthorized drug: 84(8.3%), wrong rate: 71(7%), wrong route: 41(4.1%) and wrong dosage form: 20(2%).

1- Omissions errors:
Of all these errors observed, 38.6% regarded omissions related with the difficult access to patients’ changes in the prescribed times and the non-administration of some doses. Misses, mistakes, and lack of attention are some of the factors related to the human failures that lead to acts or omissions.

2- Time errors:
In this study, 40% were regarded time errors, and the most common classes of medications were antibiotics, cardiovascular agents and anti-diabetic drugs.

3- Unauthorized drug errors:
Unauthorized drugs identified in this study, were 8.3% and most of them occurred due to the administration of Nifedipine instead of Nifedipine retard. Amoxicillin instead of Amoxicillin in combination with Clavulanate.

4- Extra doses/Wrong rate errors:
In the present study, we found extra doses, 7% which were occurred due to the administration of medications that had been suspended in the medical prescriptions. These medications were prescribed, dispensed by the Pharmacy, and subsequently, suspended by the Physician, but the nurse, did not check the medical prescription and administered the suspended medications.

5- Administration route errors:
Out of the, 1012 identified medication errors, 4.1 % were occurred due to using an administration route different from what had been prescribed. Isosorbide dinitrate was administered orally instead of sublingual; Furosemide was administered intravenously, instead of orally. Many published reports stated that one of the most frequent medication errors that caused harms to patients were rout errors.

6- Wrong Dosage form errors:
Dosage form errors were 2% which occurred due to the administration of wrong dosage form e.g. Furosemide injection instead of tablets.
CONCLUSION
In Conclusion, this study shows a trend toward irrational practice mainly on antibiotics use and steroids prescribing in most of health facilities. Patient care provided by health facilities studied was insufficient and thus effective intervention program for promotion of rational drug use practice is recommended. Further, different areas in our country and other developing countries might have these problems/results in medication errors. There is a dire need for the induction of hospital Pharmacists in the health care system to overcome these types of medication errors which leads to about 40% accidents and incidents in drug administration. Nurses involved in these medication errors should be trained for proper use and administration of the drugs to the inpatients in particular.

REFERENCES

Table 1- Drug Prescribing Pattern Identified

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<tr>
<td>02</td>
<td>Average Dispensing Time</td>
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Prescription Indicators

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<td>Average Number of Drugs Per Encounter</td>
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<td>05</td>
<td>Percentage of Encounters with Antibiotics</td>
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<tr>
<td>06</td>
<td>Percentage of Encounters with Analgesics</td>
<td>64%</td>
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<tr>
<td>07</td>
<td>Percentage of Encounters with Steroids Prescribed</td>
<td>13%</td>
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<td>08</td>
<td>Percentage of Encounters with Injections Prescribed</td>
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Table 2- Types of Medication Errors Identified

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