

Study of drug prescriptions in medical in-patients in a teaching hospital**Ramesh L.***

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ABSTRACT

Background: Study of prescriptions reveals the drug utilization pattern in a given hospital at a given time. This study was conducted to observe and analyse the prescribing pattern of drugs for the in-patients in the general medicine department of a teaching hospital.

Methods: In a prospective observational study, a total of 234 prescriptions of in-patients of general medicine department of a teaching hospital were analysed. The drugs prescribed their route of administration, diagnosis and demographic data were recorded.

Results: Pantoprazole and ondansetron were found in most of the prescriptions. Antimicrobials were the commonest class of drugs prescribed. Cephalosporins, metronidazole, doxycycline, ofloxacin and amoxicillin+clavulanate accounted for most of the antimicrobials. A drug prescribed from the national list of essential medicines (NLEM) was 75.97%. Only 3% of the drugs were prescribed by generic names.

Conclusions: Prescription of pantoprazole and ondansetron was very frequent in this study. Antimicrobials were found in most of the prescriptions. All the prescriptions in this study had injectable drugs. Three-fourths of the drugs were from the national list of essential medicines (NLEM). Generic drugs need to be prescribed more.

Keywords: Drug utilization, General medicine, In-patients

INTRODUCTION

Study of prescriptions reveals the drug utilization pattern in a given hospital at a given time. This information may then be compared with data from other hospitals to look for variations. The data may also be compared with earlier studies to look for any changes in the pattern of drug use over the years.

Drug utilization research is an important tool to analyze the use of drugs with special emphasis on medical, social and economic consequences in a society.¹ Many hurdles in pharmacotherapy such as adverse drug reactions and drug interactions can be reduced by periodic evaluation of drug utilization patterns.²

Drug utilization studies are continuing programmes that review, analyze and interpret the pattern of drug use.³ These studies are also helpful to suggest modifications, if necessary, in the prescribing behavior of medical

practitioners to make medical care rational and cost effective.⁴

This study was conducted to observe and analyze the prescribing pattern of drugs for the in-patients in the general medicine department of a teaching hospital.

METHODS

This was a prospective observational study conducted in the general medicine department of a teaching hospital. A total of 234 prescriptions were analyzed. In-patients of general medicine department, of both sex and any age were included in this study. Data was collected from the case sheets of the patients and documented in a pre-designed case record form. Demographic data like age and sex were noted. The clinical data comprising diagnosis, name of the drugs and their route of administration were recorded.

The data thus obtained was analyzed to arrive at the WHO core prescribing indicators and patient indicators as mentioned below.

WHO core prescribing indicators:

1. Average number of drugs per prescription
2. Percentage of drugs prescribed by generic names
3. Number of prescriptions with an antibiotic
4. Number of prescriptions with an injection
5. Number of drugs prescribed from the national list of essential medicines (NLEM)

Patient indicators:

1. Total number of male and female patients
2. Average age of male and female patients

The national list of essential medicines⁵ 2015 (India) was accessed on 23 September 2016 from the website: <http://cdsco.nic.in/WriteReadData/NLEM-2015/NLEM,%202015.pdf>

RESULTS

Table 1: Prescribing indicators.

Total number of drugs in all prescriptions	1132
Total number of prescriptions	234
Average number of drugs per prescription	4.83
Minimum number of drugs per prescription	3
Maximum number of drugs per prescription	13
Number of drugs prescribed by oral route	603 (53.26%)
Number of drugs prescribed by injection	517 (45.67%)
Number of drugs prescribed by topical route	12 (1.06%)

Table 2: WHO core indicators assessing drug prescription.

WHO core indicators	Number	%
Average number of drugs per prescription	4.83	
Drugs prescribed by generic names	34 (n=1132)	3%
Encounters (prescriptions) with antibiotics	207 (n=234)	88.46%
Encounters (prescriptions) with injectables	234 (n=234)	100%
Number of drugs prescribed from the national list of essential medicines (NLEM)	860 (n=1132)	75.97%

This study showed a large percentage of drugs given by injection (45.67%) (Table 1). The number of drugs per prescription varied from a minimum of 3 to a maximum of 13. Most of the prescriptions (88.46%) had one or more antimicrobials (Table 2). Cefoperazone+sulbactam combination was the most commonly prescribed among the antimicrobials (Table 5). Metronidazole, doxycycline, ofloxacin, amoxicillin+clavulanate and ceftriaxone were the other commonly prescribed antimicrobials. Paracetamol was found in 65 prescriptions. It was prescribed to reduce fever and also to reduce pain.

Table 3: Patient indicators.

Gender	Number of patients	Average age
Male	90	49.50 years
Female	144	55.75 years

Table 4: Drug classes commonly prescribed.

Drug class	Number out of 1132 total drugs	%
Antimicrobials	333	29.41
Proton pump inhibitors	208	18.37
Antiemetics	108	9.54
Paracetamol	65	5.74
Beta blockers	47	4.15
Diuretics	39	3.44
Anti-platelet drugs	37	3.26
Hypolipidemics	33	2.91
Anti-diarrheals	30	2.65
Sucralfate	27	2.38
Vitamins	26	2.29
Corticosteroids	20	1.76

Table 5: Frequency of prescription of drugs.

Drug	No. of Prescriptions n = 234
Pantoprazole	207
Ondansetron	108
Paracetamol	65
Metronidazole	63
Furosemide	39
Cefoperazone + Sulbactam	36
Doxycycline	36
Atorvastatin	33
Ofloxacin	31
Racecadotril	30
Amoxicillin + Clavulanate	29
Sucralfate	27
Ceftriaxone	27
Vitamin B-complex + Lactobacillus	26
Metoprolol	24
Artesunate	21

Liquid Paraffin + Magnesium hydroxide	20
Aspirin	19
Ceftriaxone + Tazobactam	18
Piperacillin + Tazobactam	18
Carvedilol	18
Telmisartan	18
Clopidogrel	18
Metformin	18
Levofloxacin	15
Ranitidine	15
Amikacin	14
Prednisolone	14
Amlodipine	13
Disodium Hydrogen Citrate	11
Silodosin	11
Cefotaxime	9
Ciprofloxacin	8
Terbutaline + Bromhexine	7
Gabapentin	6
Deflazacort	6
Levocetirizine	5
Levetiracetam	5
Bisoprolol	5
Calamine lotion	4
Potassium chloride	4
Enalapril	4
Cefoperazone	3
Azithromycin	3
Mefenamic acid + Dicyclomine	3
Olmesartan + Hydrochlorothiazide	2
Esomeprazole	1
Meropenem	1
Linezolid	1
Fexofenadine	1
Atropine	1
Pralidoxime	1
Ramipril	1
Losartan+ Hydrochlorothiazide	1
Nifedipine	1
Betahistine	1
Prazosin	1
Darifenacin	1
Glyceryl trinitrate	1
Sertraline	1
Risperidone	1
Escitalopram	1

Gastroprotective agents such as pantoprazole, sucralfate and ranitidine were found in almost every prescription (Table 5). This study has shown that racecadotril, an enkephalinase inhibitor, is being increasingly used as an anti-diarrheal drug.

Among the cardiovascular drugs, metoprolol and carvedilol were the frequently prescribed beta-blockers.

Hypolipidemic drug atorvastatin was found in 33 prescriptions. Anti-platelet agents including aspirin and clopidogrel were found in 37 out of the 234 prescriptions studied (Table 5). Telmisartan followed by amlodipine were the commonly prescribed anti-hypertensives.

Diuretics, vitamins, laxatives, anti-diabetic agents and corticosteroids were the other commonly prescribed drugs in this study (Table 5). The detailed results are shown in the tables below.

DISCUSSION

Pantoprazole was found in most (88%) of the prescriptions (Table 5). This could be to prevent stress ulcers in acute illnesses and to reduce gastric irritation by drugs. Ondansetron was the second most frequent drug prescribed, even in the absence of vomiting/nausea. This was probably to prevent vomiting due to gastric irritation by drugs. However, further analysis and debate are needed to see whether the frequent use of these drugs is rational.

Antimicrobials were the commonest class of drugs prescribed in this study (Table 2, Table 4). This is similar to the data from other studies.^{6,7} Among the antimicrobials, third generation cephalosporins were most commonly prescribed. Other studies^{6,8,9,10} had similar findings. Cefoperazone plus sulbactam combination was the most frequent. Other antimicrobials frequently used in this study were metronidazole, doxycycline, ofloxacin and amoxicillin+ clavulanate (Table 5).

Assessment of WHO core indicators of drug prescription (Table 2) showed that all the prescriptions in this study had injectable drugs. This is understandable as the present study included only inpatients. The number of drugs prescribed from the national list of essential medicines (NLEM) was 75.97% which is a positive trend.

Only 3% of the drugs were prescribed by generic names. This highlights the need for a sustained campaign to make doctors prescribe more of generic drugs.

CONCLUSION

Prescription of pantoprazole and ondansetron was found to be very frequent in this study. Antimicrobials were found in most of the prescriptions. Cephalosporins, metronidazole, doxycycline, ofloxacin and amoxicillin+clavulanate accounted for most of the antimicrobials.

All the prescriptions in this study had injectable drugs. Three-fourths of the drugs were from the national list of essential medicines (NLEM). Generic drugs need to be prescribed more.

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