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Research Article

Drug utilization pattern in outpatient department of Government Medical College and C.P.R. Hospital, Kolhapur

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ABSTRACT

Background: Drug utilization studies are used to analyze different aspects of the use of drugs and to implement methods of improving therapeutic quality. This study was conducted to study drug prescription pattern in outpatient department of Government Medical College and C.P.R. Hospital, Kolhapur which is one of the important medical college in western Maharashtra.
Methods: One thousand prescriptions were screened & analyzed as per the study parameters from OPD of Government Medical College & C.P.R. Hospital, Kolhapur. Study parameters like demographic profile of the patient like age, sex and diagnosis were recorded. Also groups of drugs commonly prescribed, number of drugs per patient, drug profile and drawbacks of prescription if any were recorded and analyzed.
Results: Most common group of drugs prescribed by physicians was Analgesics (32.83%), followed by Antimicrobials (22.82%), Multivitamins (16.42%) and Antacids (9.14%). The average number of drugs prescribed per patient was four; the average number of analgesic was one. The incidence of polypharmacy was common occurrence and some prescriptions had small drawbacks like absence of diagnosis, absence of doctor's signature, etc.
Conclusions: We conclude that most of the prescriptions which were analyzed at R.C.S.M. Government Medical College and C.P.R. Hospital, Kolhapur, were according to the standard norms of WHO prescriptions and also most of the drugs prescribed were from the list of essential drug list. But still there is scope for improvement in prescription pattern.

Keywords: Drug utilization, Outpatient department, Prescription analysis

INTRODUCTION

A prescription-based survey is considered to be one of the most effective methods to assess and evaluate the prescribing attitude of physicians and prescription based drug utilization studies are more meaningful to observe the prescribing attitude of physicians with the aim to provide drugs rationally. The results of these types of studies, which were carried out at different health care centers are used to evaluate and analyze the medical, social and economic outcomes of the drug therapy.[1]

The World Health Organization (WHO) addressed drug utilization as "the marketing, distribution, prescription and use of drugs in a society, considering its consequences, medical, social, and economic".[2] Drug utilization studies can provide very important information, at a reasonable price, on the costs and effects either harmful or beneficial of drugs. Such studies provide much useful information including indirect data on morbidity, the pharmaceutical component of the treatment cost of an illness, therapeutic compliance, the incidence of adverse drug reactions and the effectiveness of drug consumption.[3] Drug utilization data may be used to produce crude estimates of disease prevalence also.[4]

Although, a number of studies have been undertaken to study the drug prescribing pattern of different medical and dental colleges[4-9], but no study was conducted to evaluate drug utilization pattern of R.C.S.M. Government Medical College and C.P.R. Hospital, Kolhapur which is an important medical college of western Maharashtra.

METHODS

Permission from the Dean, Head of the institute, was taken to carry out this study.

It is a prospective, randomized observational study which was carried out over a period of three months. Prescriptions of the patients by attending the outpatient department of R.C.S.M. Government Medical College, Kolhapur and those visited to dispensary were selected. Prescriptions were scanned by mobile and all scanned prescriptions were examined with reference to study parameters. Accordingly, a sample of thousand (n=1000) prescriptions of either sex were randomly selected for prescription pattern analysis. A separate file of scanned prescriptions is stored in computer of Pharmacology department for future reference.

Collected prescriptions were analyzed based on the objective of the study. The age and sex of the patients, groups of drugs commonly prescribed, number of drugs per patient, drug profile and drawbacks of prescription if any were recorded and analyzed.

RESULTS

Data of patients (n=1000) was analyzed according to the study parameters. Total number of drugs prescribed in these patients was 4474. Therefore, average number of drugs per patient was approximately 4 (i.e. 4.474). The demographic profile of the patients was found to be as follows: Male patients were more than female patients and patients of age group 20-40 years were more than other groups i.e. 39% (Table 1).

Table 1: Demographic profile of patients.

	Age distribution	Number (%)
1	Children (0-12 years)	142(14.2%)
2	Adolescents (13-19 years)	37(3.7%)
3	Adults (20-40 years)	390(39%)
4	Adults (40-60 years)	343(34.3%)
5	Above 60 years	88(8.8%)
	Sex distribution	**Number (%)**
1	Males	632(63.2%)
2	Females	368(36.8%)

Most common group of drugs prescribed by physicians was Analgesics (32.83%), followed by Antimicrobials (22.82%), Multivitamins (16.42%), Antacids (9.14%), antihistaminics, and cough syrups containing expectorants and bronchodilators (Table 2). Most common analgesics which were used are Paracetamol (tablet and syrup), Diclofenac (tablet 50mg and 100mg). Most common antimicrobials which were used are Capsule Amoxicillin, Tablet Septran, Tablet Cipro-Tz (Ciprofloxacin + Tinidazole), Capsule Doxycycline, Gentamycin eye-drops, Ciprofloxacin eye drops, Ciprofloxacin + Dexamethasone eye drops. Most common multivitamins which were used are Tablet Ferofolla, Tablet Apcal-D, Tablet Folic acid and common drugs used for acid-peptic diseases are tablet Antacid, Tablet Aciloc (Ranitidine) and Capsule Omeprazole. Some Prescriptions contained antihypertensives, anti-diabetics and anti-psychotics also.

Table 2: Common categories of drugs prescribed to outpatients.

	Category of drugs	Number of drugs (%)
1.	Analgesics	1469 (32.83%)
2.	Antibiotics	1021(22.82%)
3.	Multivitamins	735(16.42%)
4.	Antacids	409(9.14%)
5.	Cough syrups	212(4.73%)
6.	Anti-histaminics	151(3.34%)
7.	CVS related drugs	147(3.28%)
8.	CNS related drugs	109(2.43%)
9.	Others	221(4.93%)

Drugs from essential drug list (EDL) were 61.71% and fixed dose combinations were 22.64% of total drugs. Dosage forms used were mostly oral 92.20%. Topical forms were only 6.52% and injectables were only 1.27% (Table 3).

Table 3: Drug profiles.

	Parameters	Number of drugs (%)
1.	Drugs on EDL	2761(61.71%)
2.	Fixed dose combinations used	1013(22.64%)
	Dosage forms	**Number of drugs (%)**
1.	Oral	4125(92.20%)
2.	Topical	292(6.52%)
3.	Injectables	57(1.27%)

The incidence of polypharmacy was also common occurrence and maximum no. of drugs which were prescribed per prescription was four. 34.7% of prescriptions had 3 drugs, 46.9% had 4 drugs and 2.1% had 5 drugs per prescription (Table 4).

Table 4: Number of drugs prescribed per prescription.

Prescription containing Number of drugs	Number of prescriptions (%)
One	41(4.1%)
Two	112(11.2%)
Three	347(34.7%)
Four	469(46.9%)
Five	21(2.1%)
Six and above	10(1%)

Various problems were also encountered in these prescriptions. Most common error found was duration of treatment not written (11.2%). Other errors such as absence of diagnosis and absence of signature of doctor were also present (Table 5).

Table 5: Problems observed in prescriptions.

	Problem description	Number of prescriptions (%)
1.	Diagnosis not written	28(2.8%)
2.	Duration of treatment not written	112(11.2%)
3.	Sex not written	0(0%)
4.	Age not written	0(0%)
5.	Date not written	0(0%)
6.	OPD number absent	0(0%)
7.	Signature of doctor absent	12(1.2%)
8.	Total	152(15.2%)

DISCUSSION

Drug utilization studies are used to analyze different aspects of the use of drugs and to implement ways of improving therapeutic quality, keeping in mind the fact that health resources are very limited.[6] The present study was conducted to study drug utilization pattern in outpatient department of R.C.S.M. Government Medical College and C.P.R. Hospital, Kolhapur which is important medical college and hospital in western Maharashtra. The most common groups of drugs prescribed by physicians were analgesics, antimicrobials followed by multivitamins.

Most common group of drugs prescribed was analgesics and most common analgesic was paracetamol. Analgesics are used for various conditions associated with fever, pain and inflammation.[10] Analgesics were prescribed by doctors by considering adverse effects, contraindications of drugs and also by considering patient related factors like age, sex etc. Second most common group of drugs was antimicrobials and most common antimicrobials used were penicillin group of drugs, quinolones and macrolides. Factors like resistance, sensitivity and contraindications of antimicrobials were taken into consideration while prescribing these antibiotics. Appropriate use of antibiotics is necessary to prevent emergence of drug resistance and if possible these antibiotics should be used after culture sensitivity testing. Most of the cases are viral in nature and may not need antibiotics.[11] Also attention was given to the age of the patient. For example, quinolones were never prescribed to children.

In India, most of the patients attended to outpatient department of government medical colleges are from poor families and most of them are having nutrition related problems like anaemia, various vitamin and mineral deficiencies.[9,10] Also vitamins and minerals are required for women who came for antenatal care check up. Therefore, multi-vitamins group of drugs is common prescribed group among poor socio-economic families. In present data, most common multivitamins prescribed were iron, vitamin B_{12}, folic acid, calcium, vitamin D etc.

Average number of drugs per prescription is an important index of prescription audit.[12] In present study, total thousand prescriptions were studied and total number of drugs of all these prescriptions was 4474 and average drugs per patient were four. But there is a recommendation of two drugs per patient.[6] Increase in the number of drugs per prescription may increase the risk of drug-drug interactions, may lead to unwanted side effects and also increases the prescribing and dispensing errors.[5] In our study, fixed dose combinations (FDC) were also prescribed. Potential drawbacks of FDC include inflexible fixed dose ratio, incompatible pharmacokinetics, increased toxicity and physician's ignorance of contents.[5] Therefore, use of fixed dose combinations should be discouraged unless strictly necessary.

There were certain drawbacks of this study. Patients who attended outpatient department, but not visited to dispensary were not included in this study. Also Patients of AIDS and tuberculosis were excluded from the study as these patients received their medicine from ART and RNTCP centers of same medical college, respectively.

CONCLUSIONS

Taken together, we can conclude that most of the prescriptions which were analyzed at R.C.S.M. Government

Medical College and C.P.R. Hospital, Kolhapur, were according to the standard norms of WHO prescriptions and also most of the drugs prescribed were from the list of essential drug list. But still there is scope for improvement in prescription pattern.

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