International Journal of Biomedical Research
ISSN: 0976-9633 (Online); 2455-0566 (Print)
Journal DOI: https://dx.doi.org/10.7439/ijbr
CODEN: IJBRFA

Original Research Article

Study of drug prescribing pattern in a Tertiary Care Hospital in Jharkhand

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***Article History:**
Received: 20/01/2017
Revised: 24/01/2017
Accepted: 17/02/2017
DOI: https://dx.doi.org/10.7439/ijbr.v8i2.3886

Abstract

Background: In India irrational prescription of drugs is very common. So audit of prescription must be done time to time to improve its quality. The prescriptions were analyzed based on the objective of the study for promoting rational use of drugs in a population.
Objective of this study are: 1) Obtaining information about demographic profile of the patients attending OPD. 2) Collect information about no. of drugs and their dosage forms prescribed. 3) Frequency of common category of drugs prescribed. 4) Percentage of drugs prescribed by generic names and fixed dose combinations (FDCs).
Method: It was a cross sectional study conducted at outpatient department (OPD) over a period of six months from December 2015 to May 2016.
Result: Total 1012 prescriptions were collected and analyzed. 28.56% patients were 20 to 29 years age group. 31.73% were females. About half (49.21%) of prescriptions were from medicine department. Most prescribed group of drugs were antibiotics (27.01%) followed by drugs acting on gastro intestinal tract (GIT) drugs 18.96% and analgesics 18.48%. Nutritional supplements were 10.90%. Maximum 38.08% of prescriptions showed 3 drugs, 22.22% showed 4 drugs, while 4.76% showed only 1 drug. The most prescribed dosage form was tablet 66.5% whereas only 0.97% was injection. Out of total prescribed drugs only 29.4% were prescribed by their generic names whereas 10.05% were FDCs.
Conclusion: Prescription writing pattern is poor in terms of no. of drugs per prescription, overuse of antibiotics and fixed dose combination. So it needs improvement to decrease burden on the patients and wastage of resources.
Keywords: Rational use, Prescription audit, fixed dose combination.

1. Introduction

After examining a patient and making a diagnosis, a clinician may have various therapeutic options such as medications or surgery or physiotherapy and even no therapy at all. If he opts for drug therapy he has to write a prescription. A prescription is a medico legal document and hence it should be written in ink. It should not only be accurate and precise but should be written with particular care with clarity and legibility to avoid possibilities of error or misinterpretation on the part of pharmacist or chemist or patient [1].

The rational use of drug is based on the rule of right. That means the right drug to the right patient in right dosage and at a right cost. It should also fulfill the SANE criterion which means that the safety, affordability, need and efficacy of the drug should always be considered before prescribing it to the patient [2].

Irrational prescribing is a global problem. The irrationality of prescribing pattern is utmost importance because bad prescribing habit including misuse, overuse and underuse of medicines can lead to unsafe treatment, exacerbation of the disease, health hazards and economic burden on the patients and wastage of resources. Examples of irrational use of medicines include polypharmacy, inadequate dosage and use of antimicrobials even for non-

bacterial infections, excessive use of Injections when oral forms are available and inappropriate self-medications and non-compliance to dosing regimens [3].

So for reducing prescription errors, we need to do an audit of drug prescribing patterns, which could be an important indicator of quality and standard of clinical practice. Keeping these things in mind, the present study was done to see the pattern of drugs prescribed in the OPD at tertiary care hospital in Jharkhand.

2. Methods

It was a cross sectional study conducted at the OPD of a tertiary care hospital in Jharkhand. Prescriptions were collected on all working days from 10 a.m. to 11 a.m. over a period of six months from December 2015 to May 2016. Prescription slips were taken in the form of Xerox.

Data were entered into a specially designed Performa. Following parameters were recorded

1. Patients demographic Profile
2. No. of drugs and dosage forms given.
3. Category of drugs prescribed.
4. Percentage of Drugs prescribed by generic names and FDCs.

The patients were categorized by sex and then divided into different age groups. Prescriptions were analyzed according to WHO indicators.

3. Results

Total 1012 prescriptions were collected during the study period and analyzed. In demographic profiles it was found that maximum 28.56% patients attending OPD were 20-29 years age group, 19.30% were 30-39 years, and 16.22% were 40-49 years and 12.52% were 60 years and above age group (Figure 1). Among them 31.73% were females. Out of 1012 prescriptions 49.21% were from medicine department, 15.88% were from skin department, 9.52% were from ENT department and only 4.76% were from pediatrics department (Figure 2). Frequency of prescribing group of drugs show that the most prescribed drugs are antibiotics 27.01%, GIT drugs 18.96%, Analgesics 18.48%, anti-histamines 14.22% and Nutritional supplements 10.90% (Figure 3). Total 3391 drugs were prescribed in 1012 prescriptions. In different prescriptions no. of drugs varies from 1 to 6. Maximum 38.08% prescriptions had 3 drugs, 22.22% had 4 drugs, 17.47% had 2 drugs, 12.69% had 5 drugs, 4.78% prescriptions had 6 drugs and 4.76% prescriptions had only one drug (Table 1). In OPD most prescribed dosage forms were tablets 66.5% followed by capsules 16.5%, topical preparations 9.23%, syrups 6.8% and the least prescribed dosage form was injection 0.97% (Table 2). Of total prescribed drugs only 29.4% were prescribed by generic name. 10.05% were FDCs. Average no. of drugs per prescription was 3.35. All drugs were prescribed from Essential Medicine List (EML) of India and WHO.

Table 1: Distribution of prescriptions by number of Drugs Prescribed

Serial No.	No. Of Drugs Per Prescription	No. of Prescriptions	Percentage
1	1	48	4.76 %
2	2	177	17.47 %
3	3	385	38.08 %
4	4	225	22.22 %
5	5	128	12.69 %
6	6	49	4.78 %
7	**Total**	1012	

Table 2: Frequency of Prescribing Different Dosage forms

Serial No.	Dosage Forms	No. of Drugs	Percentage
1	Tablet	2255	66.5 %
2	Capsule	559	16.5 %
3	Syrup	231	6.8 %
4	Injection	33	0.97 %
5	Topical	313	9.23 %

Table 3: Analysis of WHO Prescribing indicators

Serial No.	Prescribing Indicators	Number	Percentage
1	Total No. of Prescriptions	1012	-
2	Total No. of Prescribed Drugs	3391	-
3	Average No. of Drugs Per Prescription	3.35	-
4	Drugs Prescribed under Generic name	997	29.4 %
5	FDCs used	341	10.05 %
6	No. of Prescriptions with Injection	33	0.97 %
7	No. of Prescriptions with antibiotics	916	27.0 %
8	No. of Drugs Prescribed from EML of India	3391	100 %
9	No. of Drugs Prescribed from EML of WHO	3391	100 %

Figure 1: Age wise distribution of patients attending OPD

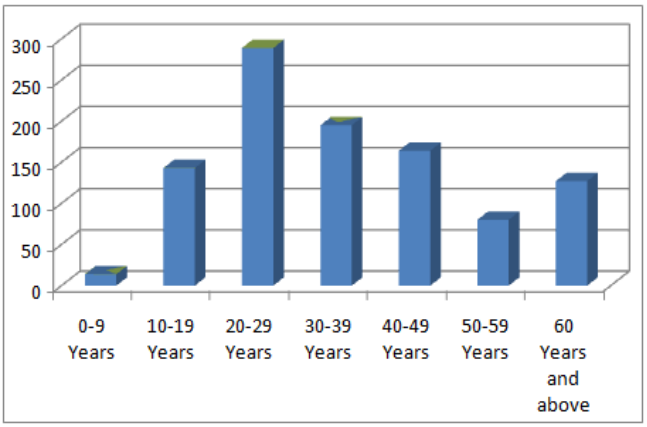


Figure 2: Department wise distribution attending OPD

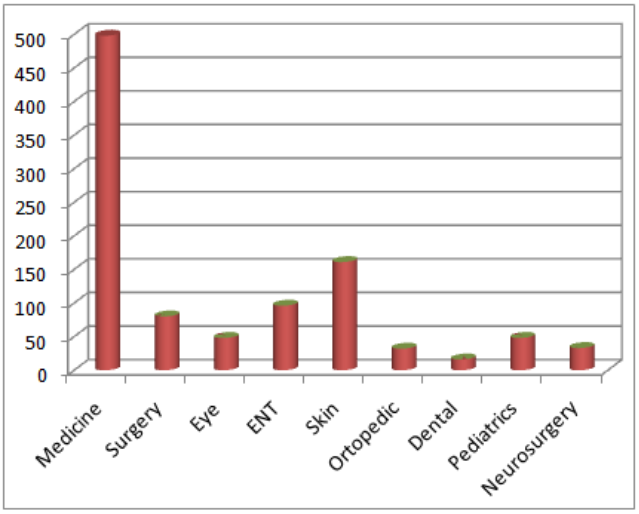
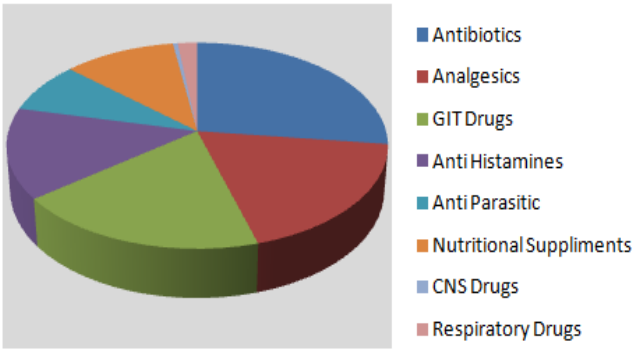


Figure 3: Frequency of Prescribing Drug groups



4. Discussion and Conclusions

Rational use of Drugs means patient receives medications appropriate to their clinical needs in dosage that meet their own individual requirements for an adequate period of time and at the lowest cost to them and their community. Irrational use of Drugs may lead to increased morbidity and mortality, wasting of resources, increased risk of adverse drug reactions and the emergence of drug resistance.

In our study total 1012 prescriptions were analyzed. Socio-demographic Profile shows that 31.73% patients attending OPD are female and mostly they are housewife. They belong to poor family. No. of females attending OPD are more in Gujarat 40% [4]. Maximum prescriptions were 20-29 years age group (28.56%).12.52% prescriptions were of >60 years age group which is similar in study done by Laveesh *et al* 15.49%[5].

Almost 50% prescriptions were from medicine department (49.21%). This figure is low in one of the tertiary care hospital in Rewa, Madhya Pradesh [6]. This indicates more patients of infectious disease in Jharkhand. They mostly come from rural areas where they live in poor hygienic conditions.

Among the medicines prescribed, Antibiotics are the most common drugs prescribed (27.01%) which is little higher than the result found in Pakistan [7]. Antibiotics are one of the most frequently used and misused drugs. They should not be prescribed in self-limiting infections or viral infections. They should be used after assuring that the condition is due to treatable infections (mostly bacterial) and is not likely to dissolve by itself or local measures only. Unnecessary use of antibiotics increases the danger of selection of resistant bacteria, their side effects and toxicity. GIT Drugs are prescribed in 18.9% of prescriptions which is similar to the study found in Singh UR *et al* study [6]. Analgesics are prescribed in 18.48% prescriptions which is similar to study of Gupta *et al* (15.5%) [8]. 10.9% Prescriptions contain nutritional supplements which are similar to study found in Tamilnadu[9]. A Nutritional Supplement is given to provide nutrients that may otherwise not consumed in sufficient quantity. If a person does not eat a nutritious variety of food, some supplements might help him to get adequate amount of essential nutrients. But supplements cannot take place of the variety of foods that are important to a healthy diet. These supplements can also interact with certain prescription drugs. So they are prescribed only when necessary. Anti-Histamines have being used in 14.22% prescriptions which is similar in Tamilnadu[9]. They are mostly used in respiratory infections which are mostly allergic in nature.

Maximum 38.08% prescriptions have 3 drugs. In our study 12.69% contain 5 drugs and only 4.78% prescriptions have 6 drugs. Uses of 4 or more medications by a patient generally adults aged over65 years is poly pharmacy. It is well accepted in pharmacology that it is impossible to accurately predict the side-effects or clinical effects of combination of drugs without studying that particular combination of drugs in test subjects. Every drug has potential adverse effects. Also there are chances of drug interaction. So no. of drugs should be minimized as much as possible.

The most prescribed dosage form is tablet 66.5% which is followed by capsule 16.5%. Topical preparations are in 9.23% of prescriptions which is very low in Balbir *et al* study [3]. This is due to more prescriptions from skin department. In our study 15.88% prescriptions are from skin department. Most of the skin diseases require at least 1 topical preparation in the form of lotion or ointments or cream. The least prescribed dosage form is injections which is only 0.97%, which is similar finding in New Delhi 0.74% [10]. Injections should not be used unless it is necessary because aseptic precaution is needed and also an expert is needed. It is costly also as compared to oral drugs.

Average No. of drugs per prescription is 3.35 which is similar to finding in Chandigarh (3.6±1.6)[11]. It is

very high in Haryana [5]. Of total prescribed drugs only 29.4% are prescribed by generic name which is similar to previous studies done here [12]. Generic drugs are chemically identical to their branded counterparts but they are typically sold at substantial discount from the branded price. Generic manufacturers are able to sell their products for lower prices because they are not required to repeat the costly clinical trials of new drugs and generally do not pay for advertising, marketing and promotion. In addition multiple generic companies are often approved to market a single product. This creates a competition in the market resulting in lower prices. So doctors are encouraged to prescribe drugs by generic names to decrease the financial burden of the individual. It also enables the pharmacist to maintain a more limited stock of drugs or dispense the cheapest drug. However if there is a particular reason to prescribe a special brand the trade name can be added [13].

10.05% prescriptions contain FDCs which is very low as compared to Ahmadabad 80.3% [14]. A FDC is one that contains two or more drugs combined in a fixed ratio of doses and available in a single dosage form. They are particularly useful in the management of HIV/AIDS, Malaria and Tuberculosis which are foremost infectious disease threat in the world today. But Many FDCs being introduced in India are usually irrational. The most important concern with irrational FDCs is that they expose patients to unnecessary risk of ADR. It also increases unnecessary financial burden on consumers [15]. All of the prescribed drugs are from EML of India and WHO.

Our prescription data analysis reveals that prescription pattern is poor in terms of average No. of drugs per prescription and the drugs prescribed by their generic names. Also there is more use of Antibiotics and FDCs which should be cautiously used. So prescription auditing is must to improve drug prescribing pattern to decrease economic burden to the patients and wastage of resources.

Acknowledgments

The authors are thankful to Manish Kumar for his assistance and to H.O.D. Pharmacology, RIMS, Ranchi for her constant support and other O.P.D. staffs for providing us easy access to the prescriptions for data collection.

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