

Prescribing activities at district health care centers of Western Odisha

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ABSTRACT

Background: Currently, rational use of drugs is a major issue in public health care. Rational use of medicines is important for decreasing the cost of therapy, avoiding drug interactions or drug reactions, improving compliance, etc. Studies from different parts of the world have shown different results regarding the rational use of drugs. We conducted this study to know the pattern of prescription and rational use of drugs in rural areas of Odisha to create awareness and knowledge among health care providers, medical students, and public.

Methods: This was a prospective study and conducted on 450 prescriptions collected from two district health care centers of Odisha state. These prescriptions collected randomly over 2-month period. Data analyzed according to prescribing indicators formulated by World Health Organization.

Results: We found that average number of drugs per encounter was 2.9. 68% drugs were prescribed by generic name. Use of antibiotics (47.7% cases) and injections (8% cases) were frequent.

Conclusion: Our finding shows deviation from the rational use of medicines in some aspect. We suggest that there should be strict regulatory guidelines and local policy for implementing rational drug use.

Keywords: Drug use indicators, Rational drug use, Prescribing pattern, World Health Organization

INTRODUCTION

Rational use of medicine is an important aspect of today's clinical practice. According to World Health Organization (WHO), patients should receive medication appropriate to their clinical needs, in doses that meet their individual requirement, for an adequate period of time and at a lower cost.¹ Patients are receiving multiple drugs per encounter, inappropriate antibiotics multiple injections as well as self-medicating themselves. Another important aspect is the occurrence of adverse drug reactions due to irrational use of medicines. To assess the scope for improvement in rational drug use WHO formulated a set of "drug use indicators." The objective of our study was to evaluate the current status of prescribing pattern in rural areas of our state Odisha by evaluating the prescribing indicators formulated by WHO.

METHODS

The health care centers selected for this study were from districts of the western part of Odisha state. A total number of 450 prescriptions were collected randomly from two district health care centers covering around 1,50,000 population.² This study was conducted in the Department of Pharmacology, Kalinga Institute of Medical Sciences Medical College and Hospital Bhubaneswar, Odisha. This is a prospective study carried out in the month of November and December 2014. The study includes encounters with mixed illness and patients of different ages. All the prescriptions were collected by the authors in the outpatients department. We collected all the information about the patients including age, gender, diagnosis, drugs prescribed. Then the data were evaluated on the basis of prescribing indicators formulated by WHO (Table 1). These indicators are included in the drug use indicator list formulated by WHO. In the statistical

analysis, average/means and percentage were obtained and placed in result Tables 1-3.

RESULTS

We collected a total of 450 prescriptions out of which male patients were 238 and female patients were 212 (52.8% vs. 47.2%). A total of 1305 individual drugs were prescribed in total 450 prescriptions. The average number of drugs per encounter was 2.9 and range of drugs varied from 1 to 8. Prescriptions containing different number of drugs are listed in Table 2. There were 140 prescriptions (31%) which contained 4 or more than 4 drugs. Different dosage forms e.g., tablet, syrup, capsule, ampoules/vials, ointment, gels, eye drops were prescribed to the patients. Most common dosage form was a tablet (47.5%). Injections were prescribed in 36 encounters out of 450 cases (8%). There were 12 prescriptions which contained two injection formulations. The number of encounters with antibiotics was 215 (47.7%). Antibiotics i.e. total of 322 numbers constituted 24.7% of total number of drugs prescribed. Most of the antibiotics were from penicillin and fluoroquinolone group. According to our finding, 68% of all the drugs were prescribed in the generic name. Most of the preparations available at health care centers are procured by the government. There was no availability of essential drug list or national formulary at the primary health care centers.

DISCUSSION

The major indicators of rational drug use are number of drugs and injections per encounter. Our study shows 2.9

Table 1: World Health Organization prescribing indicators.

Prescribing indicators
Average number of medicines prescribed per patient encounter
Percentage of medicines prescribed by generic name
Percentage of encounters with an antibiotic prescribed
Percentage of encounters with an injection prescribed
Percentage of medicines prescribed from essential medicines list or formulary

Table 2: Number of drugs prescribed per prescription.

Prescription containing number of drugs	Number of prescriptions (%)
One	4 (0.8)
Two-Three	306 (68)
Four- Seven	138 (30.7)
Eight	2 (0.5)

drugs per encounter which is more than the recommended limit of 2.0.² Findings from other studies are also similar to our study. Studies which show the lower value of number of drugs per encounter are Rehan et al.³ (2.4), Maini et al.⁴ (2.6). According to Rishi et al. (2003)⁵ the value was 3.6. In our study, 30% cases prescribed with four or more drugs. This could increase the risk of drug interactions, dispensing errors, and also a problem regarding compliance of the patients sticking to drug regimens. In our state, the medicines available at the health care centers, though in brand names but these are procured by the government on tender call. Hence, the medications are available free of cost to the patients and can be regarded as generic medicines. Those drugs prescribed but not available at health care centers, patients buy them from outside medicine stores. Based on this information, we found that 68% of all the drugs are prescribed with their generic names. We compared our finding with other literature of India and those from outside India. Rishi et al.⁵ and a study conducted by Karande et al.⁶ have shown that use of generic drugs over 50%. Drugs should be prescribed under generic names so as to have a less economic burden on the patients. A study conducted by Rehan et al.³ showed, only 1.5% of all drugs prescribed by generic names. Injections are prescribed in 8% cases which is higher than the findings of other studies. Similar values obtained by Maini et al.⁴ (6.8) and Rishi et al.⁵ (2003) (7.0). Of 450 prescriptions, 12 prescriptions contained two injectable preparations. There should be the lesser use of injections so as to reduce the risk of HIV and other blood-borne pathogens infections.⁷ This holds more importance in the rural areas with the population having low education. As our study shows 47.7% of prescriptions contain antibiotics and this value is less than findings of other studies like Hazra et al. (2000)⁸, Rehan et al. (2001),³ Rishi et al.,⁵ but our finding is also higher than findings of Karande et al.,⁶ Biswas et al.,⁹ Maini et al.⁴ There should be proper antibiotic use to prevent development of drug resistance. We compared our findings with other studies and ideal values set by WHO in Table 3.

CONCLUSION

Our study shows deviation in the rational use of medicine in our setup. Inappropriate use of drugs may lead to poor quality of public health care and unnecessary financial burden to the patients. Hence, there should be strict regulatory guidelines and local policy regarding the implementation of rational use of drugs. Our study holds limitation like low sample size but, other future studies having large sample size regarding the rational use of medicine can use our study as baseline data for comparison.

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Ethical approval: The study was approved by the Institutional Ethics Committee

Table 3: Comparison of prescribing indicators obtained in current study with other studies.

Prescribing indicators	WHO ideal value	Current study	Karande et al.	Biswas et al.	Hazra et al.	Rehan et al.	Maini et al.	Rishi et al.
Average number of drugs prescribed	<2	2.9	2.9	3.0	3.2	2.4	2.6	3.6
Percentage of drugs prescribed by generic names	100%	68%	73.4	35	46.2	1.5	6.9	51.0
Percentage of encounters with an antibiotic prescribed	<30%	47.7%	39.6	-	72.8	78.8	46.9	77.2
Percentage of encounters with an injection prescribed	<10%	8%	0.2	-	3.9	0	6.8	7.0
Percentage of drugs prescribed from essential drug list	100%	-	90.3	-	45.7	18.5	23.0	-

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