

Pattern of Drug Use in Patients Attending Medicine OPD In A Tertiary Hospital of Assam

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Abstract: A hospital based cross-sectional study was undertaken in the medicine OPD of a tertiary health care facility in Guwahati, Assam, India to delineate prescription practices and extent of rational drug therapy. We report here the result of a prescription audit to check for the prescribing behaviour of medical practitioners and to identify prescribing errors using WHO indicators. A total of 300 patients attending the medicine OPD with history of short duration illness were selected using purposive sampling and data was collected for a one month period on alternate days. The results reveal the prescribing patterns of the medical practitioners as irrational as polypharmacy was resorted to often. The average number of drugs per prescription was 2.5. The prescription of generic drugs was almost nil indicating that the drugs used were proprietary. Injection use in the present study was 1.6% and this increased with increase in the number of drugs per prescription as well as the number of antibiotics. Antibiotic usage was 36% and this increased with the number of drugs per prescription indicating irrational prescribing. The antibiotic usage pattern revealed that cephalosporins and fluoroquinolones were most commonly prescribed. The usage of fixed dose formulations was somewhat limited.

Keywords: antibiotic usage, cross-sectional study, polypharmacy, rational prescribing.

I. Introduction

Drugs are essential to health care, to save lives, decrease suffering and improve health. Rational drug use implies availability of medicine, access and affordability and rationality of prescription. According to the WHO definition: "Rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period of time, at the lowest cost to them and their community"[1]. Irrational drug use increases the financial cost to the person and health system besides side effect to patient. Although there has been a tremendous increase in the number of pharmaceutical products in the marketplace in recent times, there has been no proportionate concomitant improvement in health [2]. Thus the cost of health care has increased. Besides in developing countries like India the situation is magnified by limited economic resources and lack of an organized drug policy. In 1977, WHO published the first Model List of Essential Drugs and subsequently has attempted to improve drug-use practices in developing countries. By definition, essential drugs are those that "are available in a given setting and are restricted to those proven to be therapeutically effective, have acceptable safety, and satisfy the health care needs of the population". Prescription analysis and audit represents an essential tool in improving drug use practices in developing countries in that it is an objective and standard method of describing drug-use patterns and prescribing behaviour in health facilities [3].

The bacterial disease burden in India is among the highest in the world and antibiotic use has been increasing steadily, the units of antibiotics sold increased by about 40 per cent. With the emergence of antibiotic resistance, rational drug use has gained renewed importance. Overprescribing and overuse are seen in all settings public and private hospitals, clinics and pharmacies. The burgeoning cost of drugs is another major factor at the community level [4]. The deleterious impact of poor quality prescriptions, under- and over-dosing, duplication and multiplicity of drugs on the restricted purse of sick persons, particularly those belonging to lower socio-economic strata also adversely affects their households as a whole in terms of the non-health expenditures such as food, clothing and education.

The present article reports the results of a prescription audit in a tertiary hospital in Guwahati, Assam, India, to quantify any correlation between the prescribing behaviour of medical practitioners and the concept of essential drugs and to identify prescribing errors using WHO indicators.

II. Objectives

To study the pattern of drugs and antibiotic usage in patient attending the medicine OPD of a tertiary public health facility.

III. Materials and Methods

We conducted a hospital based cross sectional study in the medicine OPD of a tertiary public health facility in Guwahati, Assam. Using purposive sampling we took a sample size of 300. Patients attending medicine OPD with history of short duration illness (less than two weeks) were included in the study. Patients on follow up visit, referred from other places or those requiring hospitalization were excluded. Data was collected over a period of one month on alternate days. A prescription scanning and audit was done upon patient's exit from the consultation room. The ethical clearance was obtained from Institutional Ethics Committee. The prescription was analysed for

- The average number of drugs per prescription
- Proportion of prescription containing an antibiotic
- Proportion of prescription with generic name
- Proportion of prescription with an injectable preparation
- Average cost of a prescription

These indicators are highly standardized in terms of their definition and facilitate the quick and reliable assessment of drug use in health care [5]. Use of these indicators facilitates identification of particular drug-use issues that may subsequently need to be examined in more detail.

IV. Results

Male patients comprised 65% while females constituted the remaining 35%. Analysis of age showed 53% of patients were in the age group of 21-40 yrs, 28 % in 41-60 years and 6% above 60 years. 66% of patients came from within 5 km distance from the hospital, 7% from a distance more than 5 Km but within same district and 27% patient came from different district. The average number of drugs per prescription was 2.5 per prescription. The duration of illness for the patients is shown in the figure below (Fig. 1), with 42% of patients being in the range of 3-7 days. 66% of the patients were on 1 to 3 drugs (Fig. 2) which implies that polypharmacy was prescribed. 29% of patients were on a single antibiotic while 5% were on two antibiotics (Fig. 3). It was also found that the most frequently prescribed antibiotic was amoxicillin-clavulanic acid followed by azithromycin (Table 1). The proportion of patient encounters that led to the prescription of generic drugs was close to nil. The percentage of prescription where an injection was prescribed was 1.6%. Finally an analysis of the cost factor of prescription indicated that 51 % of prescription had cost of INR less than Rs 200 and 17 % more than Rs 400 (Table 2).

V. Discussion

In prescription analysis studies like drug utilization the average number of drugs per prescription is the most frequently used measure. Average number of drug per prescription in our study is 2.5 in comparison to 2.81 in Pune medical practitioners [6] and 2.71 in South India [7]. In a prescription survey in Goa more than 3 drugs were prescribed in 52.7 % cases and more than 5 drugs in 21.5 % in the prescription survey. On the other hand, in a prescription analysis study in rural Varanasi the average number of drugs per prescription was 3.07 [8].

Prescription of generic drugs was poor in the present study and almost nil, compared to 3-20% in Pune Practitioners [6] indicating that most of the drugs used were proprietary. Average cost of prescription was Rs 272.50 in this study. Hemchandra et al [9] found the average cost of prescription to be Rs 123.75 per prescription. Injection use in the present study is 1.6 % in comparison to 5.3 % by Patel et al in Goa [10] and 10 % by Bhatnagar et al [8] in Rural Varanasi. Prescription of injections is thus seen in a small percentage of patients that markedly increases when the number of drugs prescribed is more than 5 and the number of antibiotics is more than 2.

Antibiotic usage in the present study is 36 %. It is much lower than other studies viz. 75 % observed by M J Kshirsagar in Pune [6], 70 % by Kumar Indira et al in South India [7], 43.3% by Bhatnagar et al in Varanasi [8]. However Kotwani et al [11] observed antibiotic use of 39% in public facilities and 43.4 % in private facilities in Delhi. The study also reveals that the prescription of antibiotics increased with the number of drugs per prescription, and this contributes to irrational prescribing. Antibiotic usage pattern in most studies shows cephalosporin and fluoroquinolones as the most prescribed groups of drugs followed by macrolides and penicillin. In the present study fluoroquinolones and penicillin were commonly prescribed followed by macrolide group of antibiotics. Prescription of fixed-dose formulations like amoxicillin-clavulanic acid is limited, but contributed to 28.4 % of the prescriptions indicating an increased frequency proportionate to the number of drugs per prescription.

VI. Figures And Tables

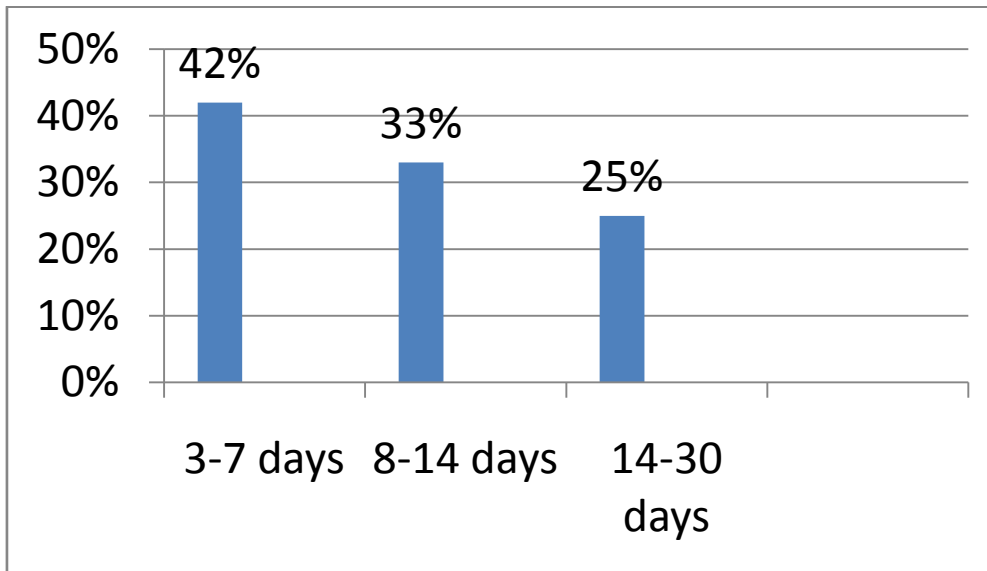


Figure 1: figure showing the distribution of the patients according to the duration of illness

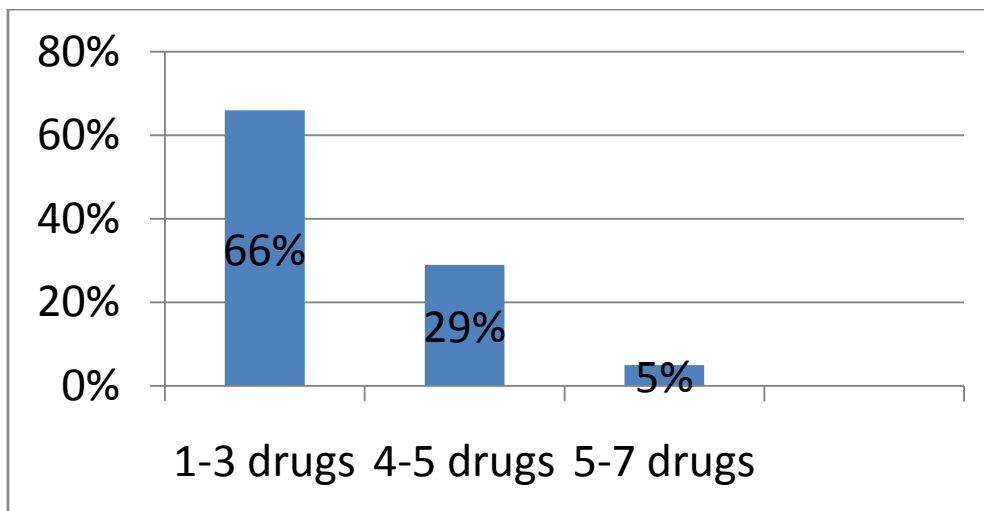


Figure 2: figure showing the distribution of the patients by the number of drugs prescribed

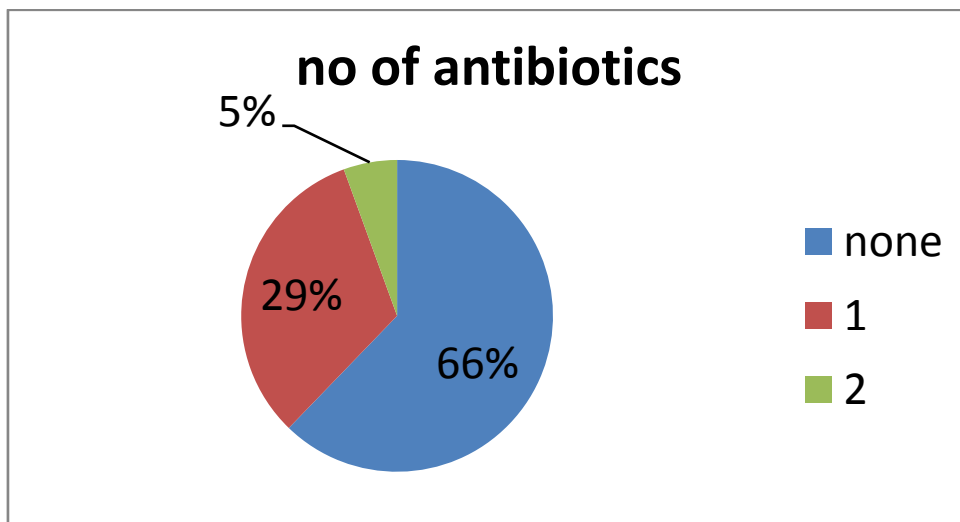


Figure 3: figure showing the proportion of patients who were prescribed antibiotics

Table 1: Showing the distribution of prescriptions according to the antibiotic prescribed

Name of antibiotics	Number of prescriptions	Percentage
Amoxicillin+Clauvamic Acid	29	28.4
Azithromycin, Roxithromycin	20,2	19.6,1.9
Levofloxacin, Ofloxacin	19,11	18.6,10.7
Cefixime , Cefuroxime	5,4	4.9,3.9
Cefopodoxime	4	3.9
Clindamycin	4	3.8
Others	4	3.9

Table 2: Showing the distribution of prescriptions according to the cost of prescription

Cost of prescription	Number of prescriptions	Percentage
< INR 100	48	16
INR 100-200	105	35
INR 200-400	96	32
>INR 400	51	17
Total	300	100

VII. Conclusion

The prescribing pattern of physicians in the tertiary government hospital shows that polypharmacy was resorted to often. The prescribing was irrational in that the prescription of antibiotics increased with the number of drugs per prescription. The same can be said about the prescription of injectable forms that increased concomitantly with the number of drugs and antibiotics prescribed. Besides antibiotics of higher generation was frequently prescribed and usage of generic drugs was minimal while that of fixed-dose formulations was quite limited.

So considering the results of the above study suggests that there is an urgent need to emphasize rational prescribing in undergraduate and postgraduate medical curriculum and there is a need for the prescribers to adhere to the prescription format, mainly to keep the number of drugs per prescription low.

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