RESEARCH PAPER

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Rational Use of Drugs through Prescription Monitoring-Part I

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Prescription monitoring study was conducted to rationalize the prescription writing habits of the physicians and to assess the pharmacy practice at the dispensing section by the pharmacists at the Panjab University Health Centre. Five hundred prescriptions were monitored by random chance method and data were filled as per WHO guideline based prescription monitoring performa. Study reported name, age, sex and disease diagnosed as 100, 38.4, 42, 12.8%, respectively of the total prescriptions. Analgesic antiinflammatory drugs (23.0%) were highly prescribed followed by antibiotics (20.7%), antihistamines (16.7%), gastrointestinal drugs (10.4%), vitamins (6.6%), cardiovascular drugs (5.8%), antiinfectives (5.2%), minerals (3.9%), steroids (3.0%), antiasthmatics (2.2%), antifungal agents (1.5%), vaccine/sera (1.0%). Doses were mentioned for 19.3% of the antibiotics prescribed. Diagnosis was written only in 12.8% of the prescription monitored. No written instruction on the container was noticed in any of the dispensed drug by the pharmacist. 85.3% of the prescribed drugs were available from Panjab University Health Centre pharmacy, of which 43.6% were dispensed in loose envelopes (without labeling). Only 17.2% of the patients knew about the nature of medication prescribed to them and 68.3% were aware of the medication. The study highlighted certain lacunae in the area of prescribing, instructions to patients and labeling of drugs. However, a need to monitor the prescriptions was felt by proper involvement of physicians, pharmacists and other staff in order to improve the prescribing practice of the physicians as well as dispensing attitudes of pharmacists.

Medicines and drugs constitute an important part of the therapeutics and have a crucial role in the health care[1]. Judicious use of drugs through rational prescribing is critical in health care delivery particularly in developing countries where budgetary provisions are limited[2-5]. The study of prescribing trend is one of the medical auditing systems, which helps to optimize prescribing practice towards achieving cost effective therapeutics for patients [6,7].

The present appraisal was conducted to monitor the existing prescription-writing trend, dispensing of the drugs to patients and patients awareness about medication amongst patients attending the outpatient department (OPD) of the Panjab University Health Centre (PUHC) at Panjab University, Chandigarh in order to draw a base line data. The base line data thus generated would help to find out the lacunae in the current practice of both physicians as well as pharmacists in the PUHC to upgrade the health care facility of patients as well as economic status of the health center. Further, to suggest measures that could be undertaken for better health and pharmaceutical care of the community.

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MATERIAL AND METHODS

The PUHC also named as Bhai Ghanayia ji caters to the health needs of campus community consisting of students, faculty, non-teaching and administrative staff and their family members numbering about 25000. The PUHC is located centrally on the Panjab University Campus, Sector 14, Chandigarh. The medical staff of the health centre includes one chief medical officer (CMO), seven physicians, part-time specialists, dentist, physiotherapist, and 7 pharmacists, 3

nurses, one clerk and other supporting staff. On an average, 230 patients visit the health centre daily during the morning hours i.e. from 8.30 a.m. to 12.30 p.m.

The pilot study was started at PUHC just after getting official consent of CMO to collect the information from the patients attending the OPD through a chance random sample method. The protocol (performa) was as per WHO guidelines[8] and it was approved by the Institutional Ethical Committee of Panjab University. At the initial stage doctors were not informed regarding the study protocol except CMO in order to assess the current prescribing trend and dispensing practice. The patients who co-operated were interviewed and information collected through patient counseling and self-observation in a semi-structured coded performa[8].

A total of 500 prescriptions were monitored for a period of six months (last week of June to last week of Dec) extending from summer, rainy and transition of winter seasons. On an average, 84 prescriptions were monitored in each month. Prescription written by the all the physicians were examined and data was compiled in the prescription-monitoring performa, which is designed as per WHO guidelines[8]. The parameters included in the protocol performa were 1) Patient's demographic data such as name, age and sex of the patient as written on the health card. Disease diagnosed was included whether or not written on health card 2) Drug related parameters included the name and category of each drug, the dosage, frequency and duration, dosage form, individual or combination (fixed-dose), generic or branded and the number of drugs prescribed. 3) Patient care indicators such as the information/instruction, time given to the patient by both the physician and the pharmacist, labeling of the drugs at the pharmacy and patient awareness about medication.

Average instruction time (AIT) was calculated and expressed as the time elapsed between patient's entry and exist from the chamber of the physician. It was further confirmed by personal discussion during patient interview. Pharmacist instruction time (AIT) was similarly calculated as the time elapsed between the time the patient gave the prescription to the pharmacist and the patients return from dispensing window with medicine and instructions on dosing schedule. Stopwatch was used to monitor these timing effectively.

RESULTS AND DISCUSSION

The demographic data viz. name, age, sex and diagnosis, that was available on patient's health cards/slips of the patients who were interviewed during the study are presented in Table 1. These demographic parameters which constitute an essential part of the ideal prescription, particularly age and sex being important in deciding the dose preferably for pediatric and patients with special care. Although the name of the patient was mentioned on all the health cards or slips, the information about age, sex and diagnosis was missing in majority of the prescriptions. The disease diagnosed was written in only 12.8% of the prescription. Ideally without considering the age, sex and disease diagnosed, it is very difficult to justify about rationality of prescribing. However, the existing practice at PUHC did not mention the diagnosis of disease on the prescription card or slip.

All the 500 prescriptions studied when taken together, a total of 1163 drugs were prescribed. Of these 50.6% were prescribed as generic, 49.4% as branded. However, the proportion of generic drugs used was found to be higher as compared to previous studies (17.0%, 29.3%)[9,10] General policy of the PUHC was to prescribe the medicines as per drug list of the health centre (which is prepared as approved

TABLE1: DEMOGRAPHIC DATA THAT WAS AVAILABLE FROM THE PATIENT'S HEALTH CARDS /PRESCRIPTION SLIPS.

	Mentioned	Not mentioned	Range (month to year)		
	(% cases)	(% cases)	Total	Male	Female
Name	100	0	-	-	-
Age	38.4	61.6	6 mo-82 y	6 mo-72y	4 -82 y
Sex	42.0	58.0	-	61.7%	38.3%
Diagnosis	12.8	87.2	-		-

All data are mentioned in percentage and age (range) is expressed in months/years. N is the total number of prescriptions (500).

by the committee). Although the prescription of fixed dose combination (e.g. paracetamol+ibuprofen) of drugs (18.3%) was found to be greater than the earlier studies (8.5%, 5.4%)[11,10], the general trend was to prescribe drugs individually (81.7%).

Study for various categories of drugs revealed that analgesic and antiinflammatory drugs were prescribed 23.0%, antibiotics 20.7%, antihistamines (antiallergics) 16.7%, drugs for gastrointestinal tract 10.4% and vitamins 6.6%. The percentage of various other categories of drugs is represented in fig. 1. Usual practice of antibiotic and analgesic/antiinflammatory drugs prescribing and usage was comparable to similar previous studies (24.4% and 19.9%, respectively)[12].

Doses were mentioned for 19.3% of the antibiotics prescribed. However, it is essential to mention the dose of antibiotics where different doses of the same antibiotic are available, for example such as amoxycillin (250 mg, 500 mg). In a similar earlier study, doses were mentioned fully in 29.3%, partly in 11.3% and were not mentioned in 60.3% of cases[13]. Without proper dose of antibiotic being mentioned the intended use of antibiotics becomes not only questionable but would lead to drug resistance. Also this would lead to failure of antimicrobial therapy. Also antibiotics are estimated to account for 50% of the value of the drug costs. Therefore, accurate dose and duration of the antibiotic therapy should be justified properly by following standard regimen, and if possible by assessing sensitivity.

Average number of drugs per prescription is an important index of prescription audit. It is preferable to keep it as low as possible since higher figure always lead to increased risk of drug interaction and non-compliance. Study reported the average number of drugs per prescription was 2.36 (range 0-6), which is found to be lesser from earlier studies such as 5.3 from Nepal, 9.4 reported from US, 4.5 from Scotland, 4.3 from South Africa and 5.1 from Sweden[10] respectively. However, patient population of these countries were different in terms of socioeconomic as well as morbidity pattern. This trend of prescribing habit along with individual drugs points toward rational prescription writing.

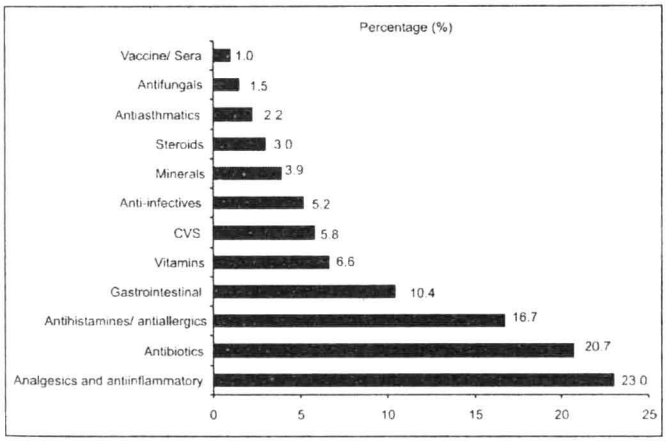

Fig. 1: Various categories of drugs prescribed at PUHC. All data are mentioned in percentage.

Patient compliance is an important factor in the success of any therapy particularly in selecting the dosage form. Various drugs were prescribed in different dosages forms. These were mainly tablets 72.5%, capsules 13.4%, cream 4.6%, eye drops 3.1%, syrups 3.0%, injections 2.0%, inhalers 0.6%, granules/powder 0.6% and lotion 0.2%.

The average information or instruction time (AIT) given to a patient by a physician was found to be 2 min 33 s per patient visiting the physician for the first time and 1min 46 s for subsequent visits. AIT by the pharmacist was 1 min 58 s. This AIT parameter is a direct indicator of the care being provided to the patient. Regarding instructions given to the patient by the pharmacist, it was found that no written instruction on the container or envelopes was given although oral instructions were given to 72.2% of the patient (Table 2). Of all the 1163 drugs prescribed, 85.3% were available to the patients from PUHC pharmacy, of which 43.6% were dispensed in loose envelopes without labeling which was one of major lacunae in the current dispensing practice (Table 2). This might be due to heavy rush during OPD. The patients were put at great drawback due to this shortcoming

TABLE 2: PHARMACEUTICAL INDICATORS: INSTRUCTION (O/W), PATIENT AWARENESS AND DRUG AVAILABILITY.

Pharmaceutical indicators	Information (%)
Oral Instruction (O)	72.0
Written instruction (W)	Nil
Available of medicines	85.3
Loose medicine	43.6
Patients awareness about medicine	17.2
Patient knew about dosing schedule	6.8

Pharmaceutical indicators such as written or oral instruction given by the pharmacist, patient awareness about medication and the availability of drugs at PUHC. All data are expressed in percentage.