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Research Article

ASSESSMENT OF DRUG DISPENSING PRACTICES USING WHO PATIENT CARE AND HEALTH FACILITY INDICATORS IN A PRIVATE TERTIARY CARE TEACHING HOSPITAL

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ABSTRACT

Objective: To assess patterns of drug dispensing practices by using WHO (World Health Organization) patient care indicators in a tertiary care teaching hospital.

Methods: A cross sectional prospective –descriptive study was carried out in the OPD (Out Patient Department) for six months. Prospectively 100 patients were interviewed at the outpatient pharmacy while drugs were dispensed to assess the patient care indicators. The health facility indicators were also assessed by ensuring the availability of EDL (Essential Drug List) and key drugs.

Results: The average consultation time was 12 min 49 sec. The average dispensing time was 4min 4 sec calculated from 100 prescriptions. The percentage of drugs dispensed was 95.54% (95% CI, 91.49% to 99.59%) and percentage of drugs adequately labeled was very low in the dispensed drugs i.e. 38.35 %(95% CI 28.82% to 47.88%).The average patients with drug dosage knowledge was also very low (31%) (95% CI, 21.94% to 40.06%). The result of the study revealed that the health facilities do not have any essential drug list .Out of 12 key drugs from the WHO list 11(91.67%) drugs are available.

Conclusion: The results indicate a considerable scope for improving the patient's knowledge on dispensed drugs and availability of essential guidelines and key drugs in the stock.

Keywords: Patient Care indicators, Rational drug use, EDL, Key drugs. Prescribing pattern, WHO

INTRODUCTION

It has been estimated that 50% or more medicine expenditure is being wasted through irrational prescribing, dispensing and patient use of medicine. Irrational poly- pharmacy invites medicine-induced diseases like adverse drug reactions (ADR), which is reported to be as highas28% .Studies done in different areas of the world reveal different drug use patterns. [1] Irrational over use of medicines can stimulate inappropriate patient demand and lead to reduced access and attendance rates due to medicine stock outs and loss of patient confidence in health .[2]

In order to discuss important aspects of the day to day practice of professionals, managers, and users of the healthcare system and to securely evaluate crucial aspects of pharmaceutical practice in the context of primary healthcare, the World Health Organization (WHO) has developed the selected drug use indicators [3]. Based on these indicators, studies have been carried out in developed and developing countries . Any drug utilization study based on the WHO core drug use indicators has limitations. Determining the quality of diagnosis and evaluating the adequacy of drug choices is beyond the scope of the prescribing indicators .Also, the patient care indicators do not capture many fundamental issues related to the quality of examination and treatment.

However, the present study provides important useful baseline data which will be useful for comparison when in future any drug utilization study is carried out . In the present study; we employ the patient care indicators to describe the dispensing practices and thereby assessing patient's knowledge on dispensed medicines

MATERIALS AND METHODS

The study was carried out for a period of 6 months from January 2012 to June 2012 in Navodaya Medical College Hospital & Research Center, Raichur. It was a Prospective – descriptive cross sectional study with sample size of 100 patients. Data were collected randomly from Outpatient and Pharmacy department using structured data entry format. Patients visiting Outpatient department and Pharmacy are included and Patients admitted in the Inpatient and Emergency department were excluded .For obtaining the clearance certificate, an application along with study protocol was submitted to the Chairman of the Institutional Ethics Committee of Navodaya Medical College Hospital & Research Centre . The study was approved by Committee by issuing ethical clearance certificate

Patients visiting outpatient departments were approached and requested to have their prescriptions Xeroxed. Data pertaining to the indicators developed by WHO for medicine use survey, along with additional information were gathered by measuring the time of patients-prescriber and patients–dispenser interactions, interviewing patients on exit, reviewing their prescriptions, visiting stores and also interviewing the pharmacist with predesigned schedules.

Assessing of Patient Care Indicators [3]

Patient care indicators such as average consultation time, average dispensing time, percentage of patients´ knowledge of correct dosage were collected.

Average consultation time

Investigators accompanied 30 appointments (15 appointments with general clinicians and 15 with pediatricians in each unit). Time was measured using a stopwatch, and the amount of time the patient spent in the consultation room was recorded in minutes. Following WHO recommendations, we included the first patients seen by each prescriber. Data collection was possible only in facilities in which the physical infrastructure allowed us to distinguish the exact moments in which the patients were called to and left the consultation room.

Average dispensing time

Average dispensing time was measured in which 15 patients were accompanied in each period of the day (morning/afternoon), totaling 280 dispensations. This indicator was investigated only in units whose structure allowed the investigator to listen to the dialogue between patient and clerk. The time consumed with writing on files or with subjects unrelated to the drug being dispensed was not considered. A stopwatch was used and time was recorded in seconds.

Percentage of drugs actually dispensed

In order to calculate the percentage of medication dispensed, we used the same prescriptions used for calculating prescribing indicators. In total, 1685 drugs were dispensed. Dispensed medications identified as free samples were not included.

Assessment of Patients knowledge

As the patients left the outpatient clinics, the investigator would then instruct the patient to collect the prescribed drug from the hospital pharmacy, and to meet him/her again to record data for the "patient care indicators". Informed consent was obtained from the patients after simple and clear explanation of the research objectives and methodology. The questionnaires had close ended questions and consist of identification (name of the patients), demographic characteristics like age, sex of the mothers/guardians and the children, their education and employment).Patients' knowledge of the correct dose of the drugs dispensed to her/him immediately after leaving the dispensing window was tested . They were asked to show the drugs given to them, which were recorded by the investigators. Prospective data from 100 interviews were held discretely in the drug information center, where pharmacist would record the data on predesigned WHO forms.

1. Do you remind the name of drug (s)? YES ☐ NO ☐

2. Do you know the dose of the drug(s)? YES ☐ NO ☐

3. Do you know the duration of treatment? YES ☐ NO ☐

4. Do you know the frequency of admin? YES ☐ NO ☐

5. Do you know the possible side effect? YES ☐ NO ☐

6. Do you get any advice regarding the proper use of your medicines? YES ☐ NO ☐

Assessment of Health Facility Indicators

For health facility indicators observation was performed to ensure the availability of Essential Drug list and key drugs in the stock

Data Analysis

All prescriptions obtained from the pharmacy and outpatient departments of the selected patients, dated from January 2012 to June 2012 were recorded and entered into a personal computer. Information recorded included age, gender, diagnosis and drugs prescribed. Data was analyzed to measure drug use indicators. The responses to close-ended questions were coded after completion of the study according to the answers which were given by respondents and recorded by researchers. Data was analyzed using Microsoft excel. Statistical significances kept as 95% confidence interval

Indicators were calculated based on the following ratios

Patient care indicators

1. Average consultation time = Total time for a series of consultations / number of consultations.
2. Average dispensing time = Total time for dispensing drugs to series of patients / number of patient encounters
3. Percentage of drugs actually dispensed = (number of drugs actually dispensed / total number of drugs prescribed) x 100
4. Percentage of drugs adequately labeled = (number of drugs adequately labeled / total number of drugs dispensed) x 100.
5. Percentage of patients who can adequately report the dosage schedule for all drugs = (number of patients who can adequately report the dosage schedule for all drugs / total number of patients interviewed) x 100

Health facility indicators

1. A national essential drugs list or a local formulary must exist for that level of care; if not, the indicator would always be scored "no". Calculation: yes (or) no, per facility
2. Availability of key drugs = (number of specified drugs actually in stock / total number of drugs on the checklist) x 100

* Included to measure the availability of a more complete range of essential drugs

Data were coded, checked for completeness and consistency. Then the data were entered and analyzed. For descriptive statistics, results were expressed in terms of Percentages and presented using tables according to the types of tool used. The results were discussed with the physicians of the study hospital.

RESULTS

The study population constituted 100 patients, out of which 54 are female patients (95% CI, 44.23% to 63.77%) and 46 are male patients (95% CI, 36.23% to 55.77%).About 25% (95% CI, 16.51% to 33.49%) of the patients belong to the age group of 31-40 years and 24%(95%CI, 15.63% to 32.37%) of the patients belong to 21 - 30 years. Educational status of patient's reveals that 57% of patients were illiterate as shown in table.1

Table 1: Educational Status of the Patients (N = 100)

Educational status	No. Of Patients
Illiterate	57
< high school studies	35
>High school studies	8

As shown in figure the average consultation time was 12 min 49 sec. The average dispensing time was 4min 4 sec calculated from 100 prescriptions. The percentage of drugs dispensed was 95.54% (95% CI, 91.49% to 99.59%) and percentage of drugs adequately labeled was very low in the dispensed drugs i.e. 38.35 %(95% CI 28.82% to 47.88%).The average patients with drug dosage knowledge was also very low (31%) (95% CI, 21.94% to 40.06%)

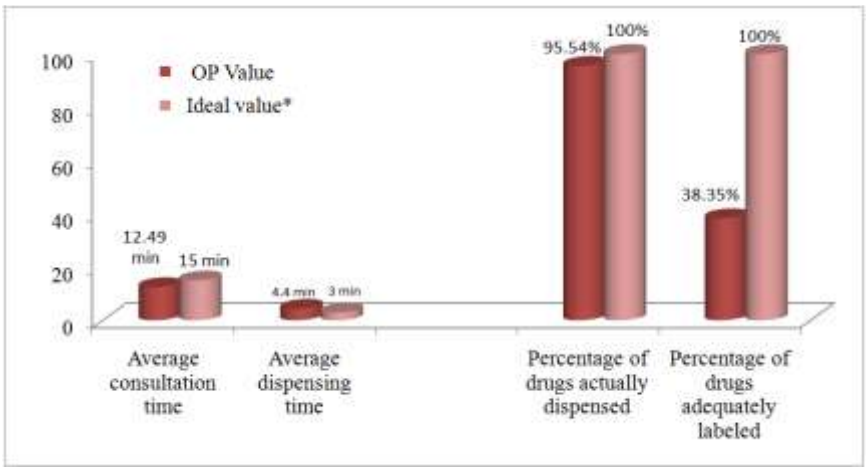

Fig. 1: Patient care Indicators (N = 100)

The result of the study revealed that the health facilities do not have any essential drug list .Out of 12 key drugs from the WHO list 11(91.67%) drugs are available shown in table.2

Table 2: Health Facility Indicators (N= 100)

S. No.	Parameters	Indicator result	Ideal value
1.	Availability of copy of essential drugs list at health facility.	NO	YES per facility
2.	Availability of key drugs	91.67%	100%

When assessed patient's perception about the outpatient dispensed medicines 85% reported that they can not remind the name of the drug. Ninety percentage do not know the dose of drug, hundred percentage of patient's claimed that they do not know the side effects of the drugs and thy are not receiving any advice regarding proper use of medicines

DISCUSSION

Dispensing practices influence the patient's compliance and thereby therapeutic success or failure.

In our facility 95.54% of prescribed drugs were dispensed, which is higher than the figure reported (Table**. 3)** in other Indian and Brazil (60.3%) studies.

The level of appropriate labeling (38.35%) needs to be improved. Although not a single dispensed drug was adequately labeled in an Indian study, but much lower figure was reported in Tanzanian study (21.4%).Only 31% of patients know the correct dosage schedule, our figure is lower than those reported(**Table .3)** in the Indian and western Nepal (81%) studies. An appropriate diagnosis is an important component in the rational drug therapy. For correct diagnosis, clinicians should spend more time in evaluating the signs, symptoms and laboratory investigations. So more the consultation time, better the chances of right diagnosis. In the present study, the consultation time was found to be 12.49 min which is below the 15 min recommended[3]. Although this duration is longer than that of reported in the Brazilian literature (9.2 min), this do not necessarily mean that patients receive better care, since number of factors may influence the result of this indicator.

WHO recommends that pharmacist should spend at least 3 min in orienting each patient. Therefore the duration of dispensation of 4.4 min found in the present study is adequate for proper pharmaceutical orientation. Some inadequacy was reported (**Table.3)** in the Indian, western Nepal (52 sec), Brazil (18.4 sec), and southwest Ethiopia (1.3min) studies.

The availability of key drugs was ensured, the present study reported a figure of 91.67%, which is lower than the WHO value[3]. Not a single Indian study showed the optimal figure of 100%.

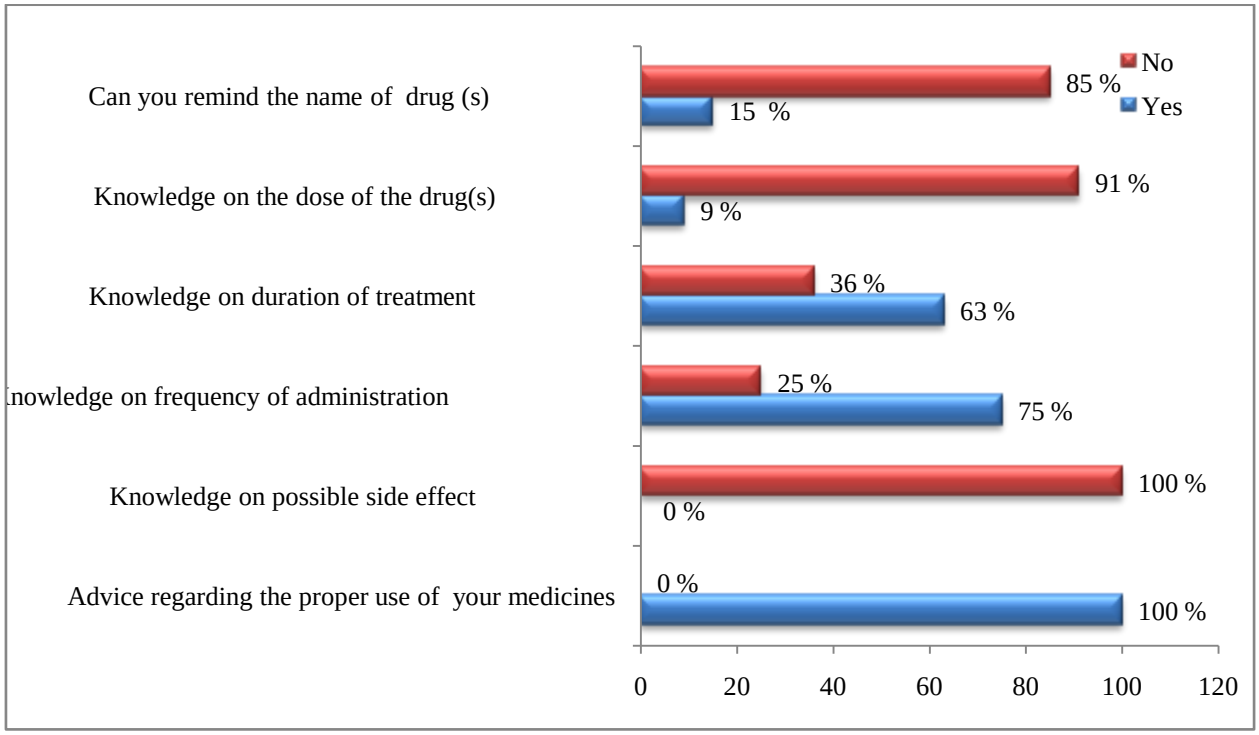

Fig. 2: Patients Perception about Outpatient pharmacy Dispensed Drugs (N = 100)

Table 3: Comparison of core drug use indicators obtained in current study with Other Indian study

Core drug use indicators	WHO ideal value	Current study	Sunil et *al* (2005)	Hazra *et al* (2000)	Rishi *et al* (2003)	Vijay kumar *et al* (2011)	Haldar *et al* (2011)	Ramesh *et al* (2011)
Average consultation time(min)	15	12.49	-	3.7	-	-	4.3	6 - 10
Average dispensing time (min)	3	4.4	-	3.1	-	-	2.1	-
% of drugs actually dispensed	100%	95.54	76.9	11.6	64.6	-	50	-
% of drugs adequately labeled	100%	38.35	18.5	56.2	0.0	-	-	-
% patients with correct knowledge of dosage	100%	31	80.8	64.5	71.5	-	-	-
Essential Drugs List / formulary available		No	No	No	-	-	-	-
% availability of key drugs	100%	91.67	85.0	-	-	-	-	-

Any drug utilization study based on the WHO core drug use indicators has limitations. Determining the quality of diagnosis and evaluating the adequacy of drug choices is beyond the scope of the prescribing indicators. Also, the patient care indicators do not capture many fundamental issues related to the quality of examination and treatment

CONCLUSION

There is a need to improve patients' knowledge on dispensed drugs and availability of essential guidelines and key drugs in the stock. Baseline data gathered by this study can be used by researchers and policymakers to monitor and improve pharmaceutical prescribing and consumption practices. Better training, supportive supervision through continuous medical education (CME), regular up-to-date medicine information and standard treatment guideline, and therapeutic audit are very much required for improvement of medicine use by prescriber and dispensers.

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