Medicine Prescribing Pattern and Knowledge on Medicine Use at Different Level of Health Care Settings in Nepal

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ABSTRACT

Background: It is imperative to have adequate knowledge about medicines being used for their proper administration so as to obtain desirable therapeutics effects. This study aims to assess the medicine prescribing pattern and patients' knowledge about medicine use at different level of health care settings in Nepal.

Methods: A cross sectional study was conducted in randomly selected 88 health facilities in Nepal. Altogether 2200 patients, taken randomly after the doctor visit, were interviewed and assessed for the prescription.

Results: Out of total drugs prescribed from 88 health facilities (6,175), 68.91% were essential drugs, 23.74 % were antibiotics and 61 % of medicines were prescribed in generic names. And among patients receiving medicines, adequate response on medicine use was received on 49% of medicines out of 3,806 medicines dispensed.

Conclusions: Greater percentages of medicines were prescribed from essential drug list in health facilities. Knowledge on medicine use was poor among people.

Keywords: Antibiotics use; drug prescribing pattern; knowledge; rational use of drugs

INTRODUCTION

Medicines are considered as the elixir of 21st century and are used widely in minor ailments to fatal conditions like cancer and various illnesses. Medicines, however, can only be effective if used rationally which includes appropriate dose, time of administration, frequency and duration.[1] In addition to this, there are numerous factors impinging the efficacy of medicines being used such as poly pharmacy, foods being administered, substandard medicines, and so on.[2] Thus, it is indispensable to have adequate awareness about medicines being used in order to obtain its desirable therapeutic effects which otherwise would affect the disease mitigation adversely. There are dearth of studies done in this sector in Nepal and data on prescribing practice in health facilities and knowledge regarding use of prescribed medication among people is countable[3-6] which are essential to devise programs and policies. Hence, this study aims to assess the drug prescribing pattern and patients' knowledge on medicine use at different governmental health facilities of Nepal.

METHODS

A cross sectional study was conducted on five development regions of Nepal. Multistage sampling techniques was used to identify districts from five development regions. From each domain, districts were divided into three strata according to the ecological belts. Then, three districts, one each representing Terai, Hill and Mountain were selected using random number table. From the list of total health facilities of selected district, one District Hospital (DH), one Primary Health Care Centre (PHCC) and four Health Posts (HPs) were chosen using random number table. The number of health facilities included in this study was based on WHO Operational package for assessing, monitoring and evaluating country pharmaceutical situations: guide for coordinator and data collector[7]. Altogether, 15 DH, 15 PHCC and 58 HP were selected for the study. Two HPs were discarded from the list of selected health facilities since they had been upgraded to PHCC at the time of the study. Five teams, each comprising of eight members with one supervisor and seven enumerators

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were deployed for data collection. Enumerators with educational background on pharmacy, nursing and public health were deployed in field. Data collection was carried out from April to July, 2016.

Patients returning after having checked up were selected randomly for the study. From each selected health facilities, at least twenty cases not exceeding thirty were chosen on random basis within 2 to 3 consecutive days and face to face interview was taken with individual participant using structured questionnaire. Participants were taken face to face interview where they were asked to identify the right medicine with their dose, frequency, time and duration for administration by showing the individual medicine on their hands. Participants who were able to give correct response regarding dose, frequency, time and duration for administration of medicines were considered having adequate knowledge on medicine use. In addition to this, patients were also asked if they were given counseling regarding any precautions to adopt. The answers received from patients were recorded in the questionnaire. The quantity of medicines received by the patients were observed, counted and recorded. All together 2200 prescriptions were assessed and information written in the prescription; name of prescribed medicines with

their dose, dosage form, frequency and duration were recorded. Descriptive statistics of the obtained data were presented in the form of tables and figure.

Written consent was taken with every participant before taking the interview and for children less than 14 years of age, consent were obtained from their parents or caretaker. Ethical approval was taken from Ethical Review Board of NHRC before the execution of this study. Obtained data were entered in Epidata version 3.1, cleaned on Microsoft Excel 2007 and analyzed using the SPSS version 20.

RESULTS

Out of total prescribed medicines (6,175) from 88 health facilities, 68.91% were essential medicines and 23.74 % were antibiotics as shown in table 1. In total, 61 % of medicines were prescribed with generic names. The average number of drugs per encounter in DH, PHCC and HP were 1.04, 0.5 and 1.3 respectively with 1 to 8 medicines prescribed per encounter. Out of 1,466 antibiotics prescribed in total from all selected 88 health facilities, 68.76 % of antibiotics were dispensed (Table 1).

Table 1. Characteristics of prescribed drugs in different health facilities.

| Characteristics	DH		PHCC		HP		Total	
	n	%	n	%	n	%	N	%
Total medicines dispensed	2280	51.27	1097	57.59	2798	71.59	6175	61.64
Medicine prescribed with generic name	2280	47.98	1097	57.52	2798	72.34	6175	60.71
Essential medicine prescribed	2280	56.45	1097	66.55	2798	79.98	6175	68.91
Antibiotics prescribed	2280	20.18	1097	23.79	2798	26.63	6175	23.74
Medicine dispensed in sufficient quantity	1169	51.97	634	54.82	2003	50.89	3806	51.81
Adequate response on medicine use	1169	49.74	634	45.49	2003	49.95	3806	49.18
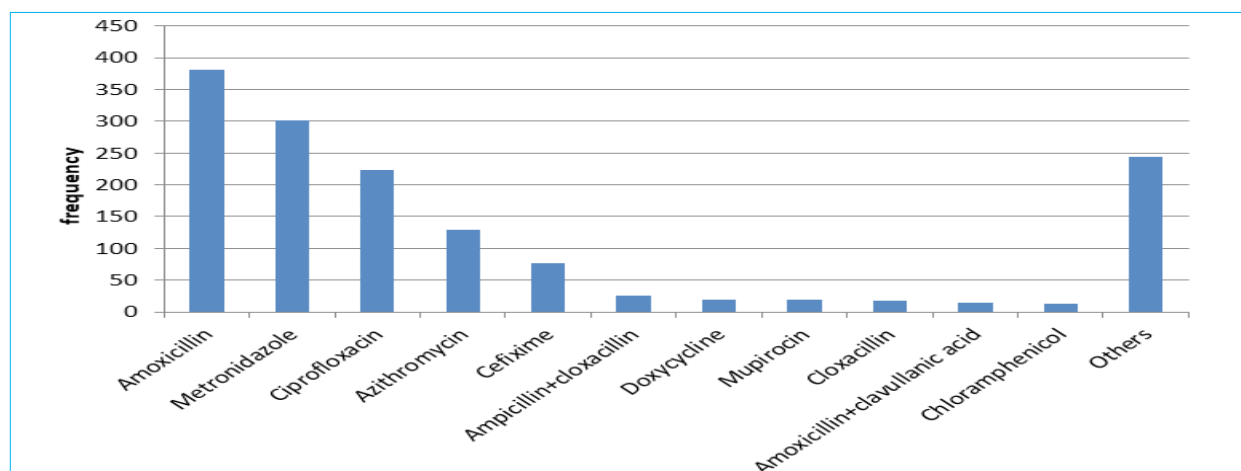
Figure 1. depicts the most widely prescribed antibiotics in the health facilities.

On assessing prescriptions, only 51.81 % of medicines (out of 6,175) were found to have been dispensed in quantity written in the prescriptions.

When patient's knowledge was assessed regarding right medicines, right dose, right frequency, right time and right duration, correct responses in all these parameters i.e. adequate knowledge were obtained on 49% of medicines only (out of 3,806 dispensed medicines) while individual correct responses were received on 63%, 82%, 87%, 75% and 59 % of antibiotics respectively (Table 2).

Table 2. Response on antibiotics use.

	DH (n=306)	PHC (n=171)	HP (n=531)	total (N=1008)
Right medicine	65.36	55.55	63.27	62.59
Right dose	81.05	83.04	81.73	81.74
Right frequency	87.58	49.02	85.88	86.71
Right time	77.45	66.67	76.27	75.00
Right duration	62.09	51.46	59.32	58.83
Adequate knowledge	43.46	33.92	41.81	40.97

People were examined by doctors in all the selected DHs and 60 % of PHCCs. Whereas, CMA and health Assistants were involved as key personnel for examination in 45 % and 36 % of selected HPs respectively (Table 3).

Table 3. Distribution of personal primarily engaged in examining patients at different health facilities

Responsible person for examination	DH	PHCC	HP	Total
	%	%	%	%
Doctor	100	60	-	27.3
Health Assistant	-	40	36.2	30.7
CMA	-	-	44.8	29.5
AHW	-	13.3	25.9	19.3
Staff nurse	-	6.7	1.7	2.3
ANM	-	13.3	6.9	6.8

*CMA= Community Health Worker, *AHW=Auxiliary Health Worker, *ANM= Auxiliary Nurse Mid-wife*

Medicines were dispensed by pharmacists or assistant pharmacists in DH only and it constituted only 13 % out of total selected DHs. Table 4 demonstrates the clear data of the personnel involved in dispensing.

Table 4. Distribution of Personnel involved in dispensing Health Facility

Responsible for dispensing	DH	PHCC	HP	Total
	%	%	%	%
Doctor	-	-	-	-
HA	20	13.3	15.5	15.9
CMA/AHW	46.7	53.3	70.7	63.6
Staff nurse/ANM	26.7	60	44.8	44.3
Assistant pharmacist	13.3	-	-	2.3
Pharmacist	13.3	-	-	2.3
Others	-	6.7	-	1.1

DISCUSSION

The purpose of this study was to study the prescribing pattern and knowledge on use of prescribed medicines. This is the first survey on prescribing pattern and participants' knowledge on medicine use in Nepal encompassing 19.45% of total districts. Most of the studies are immured to specific districts or areas.[3-7] The study reveals sound prescribing practices in health facilities like prescribing with generic names and prescribing essential medicines but poor responses was identified about use of majority of drugs. The response was even less in case of antibiotics use.

It is desirable to prescribe medicines with generic name from all level of health facilities in order to maintain uniformity in prescribing and to avoid prescriber's preference to particular brands.[8] In this study, 60.71% of drugs were prescribed with generic names which is lower than the standard value of WHO i.e. 100 %.[9] It is difficult to compare the drug prescribing pattern with previous studies as variables are different. However, only comparing similar variables, percentage of medicines prescribed with generic name from 15 PHCC as seen in our study was 57.52% which is consistent to similar study carried out in 11 PHCC of Kaski district (59.02%) in 2012[6] Importantly, the greater number of medicines prescribed with generic names were from HP (72.34%) and the least numbers were from DH (47.98%) in this study.

National List of Essential medicines (NLEM) are prepared by the country which includes effective and safe medicines in order to meet the pressing needs of its people.[10] In Nepal, essential medicines are dispensed free of cost from health facilities considering the

disease condition of the individual. Data showed that 68.91% of prescribed drugs were essential drugs which are lower than the standard value (100 %).[9] About 67 % of drugs in PHCC were prescribed from essential drug list which is lower than the study carried out in 11 PHCC of Kaski district (85.19%).[6] This variation might be due to differences in geographical variables as PHCC from 15 different districts were included in this study compared to the previous study.[6]

Again, the number of drugs prescribed from NLEM was also least in DH (56.45%) compared to HP (79.98%) and PHCC (66.55%). The data also revealed that out of total prescribed medicines, about two third of medicines were found to have been dispensed from health facilities. This would result in out of pocket expenditure of people. Interestingly, out of total prescribed medicines, only half of the medicines were dispensed from DH. While the number of dispensed medicines (out of total prescribed) seemed to have increased gradually moving from PHCC (57.59%) to HP (71.59%).

Greater discrepancy was evident in DH compared to HP and PHCC regarding prescribing with generic names, prescribing medicines from NLEM and total medicines dispensed from health facilities. This could be due to availability of different brands of medicines and private pharmacies around DH which allows greater flexibility for prescribing to doctors. Moreover, greater influences of gifts and commissions from pharmaceutical companies among doctors for prescribing their brands as seen in previous studies might also lead to the above difference in health facilities level.[11,12] Comparatively, more patients flow is expected in DH and this might lead to shortage of medicine in stock. In addition to this, sometimes natural disasters or epidemics might also cause large consumption of medicines culminating to the storage of medicines in stock.

For dispensing of medicines, involvement of paramedical staffs was found in most of the health facilities. Surprisingly, in few PHCC, medicines were also found to be dispensed by non-medical personnel. Pharmacists and assistant pharmacists, major professionals for dispensing medicines, were evident in few DHs only (13.3%). Participants' knowledge regarding the medicine use, which they were prescribed and supposed to consume, was found to be poor and the scenario was even worse in case of participants' knowledge on antibiotics use. Participants' knowledge regarding medicine use obtained in this study is higher than the

study carried out in Kaski district.[6] Among different level of health facilities, participants' knowledge was found to be least in PHCC. One causal factor for this finding could probably be attributed to the involvement of non-medical personnel for dispensing medicines in PHCC. Providing trainings regarding dispensing practice to medicine retailers as established by K. Kafle et. al[13] study might be helpful. Next, greater involvement of pharmacists or assistant pharmacists in all level of health facilities might contribute significantly in increasing knowledge regarding medicine use among people.[14,15] However, this fact could be studied better through an interventional study.

To the best of our knowledge, this is the first study in Nepal that encompasses health facilities in a greater number. This study explored medicine use pattern in different health facilities of Nepal along with patients' knowledge on medicines and antibiotics use. However, there are some limitations of this study. As this is a cross sectional study, we could not establish any causality. For example, causal relationships between patient's knowledge on medicine use with qualification of dispenser, examiner and other variables could not be established. But the findings from this study will serve as a preliminary support for further interventional studies in this field. Further, our study participants were only the out-patients prescribed with medicines. We collected data consecutively for 2 to 3 days in each health facilities. Data obtained would be more scientific if the data collection period was longer. There should be future studies to obtain prospective data on prescribing practice, dispensing practice and rational use of drugs including antibiotics in health facilities of Nepal.

CONCLUSIONS

Majority of drugs in health facilities were prescribed with generic names and from National List of Essential Medicines. However, medicines were widely being used irrationally in health facilities of Nepal. People were found not receiving medicines in prescribed quantity. In few primary health care centers, medicines were found to be dispensed by non-medical persons. Knowledge on medicine use including the use of antibiotics was poor among people.

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