

## Prescribing Trends at In-patient Departments of the TU Teaching Hospital, Kathmandu\*

<sup>1</sup> Mohan P Joshi

<sup>2</sup> Kalpana Srivastava

<sup>3</sup> Kyoko Maeda

A 6-month study was done to find out some general patterns of prescribing at in-patient departments of the Tribhuvan University Teaching Hospital (TUTH), Kathmandu. Average number of drugs prescribed per patient was 8.1. 56.8% drugs were given by enteral route, 41.3% by injectable route, and 1.9% by local route. 56.3% of the drugs prescribed were from within the National List of Essential Drugs, Nepal. About half (51.5%) of the drugs were prescribed by generic names and half by brand names. 28% of all the drugs given were combination products. Of all the patients, 60.4% received IV fluids, 72.4% received antibacterials, 42.2% received narcotic analgesics, 60.6% received non-narcotic analgesics/NSAIDs, 34.9% received sedative-hypnotics/anxiolytics, and 52.8% received multi-vitamins &/or -minerals / tonics.

### INTRODUCTION

Health care delivery involves, among other things, use of drugs. For bringing improvement in the use of drugs, it is first important to know how they are being utilized.

The WHO has defined drug utilization as 'the marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social and economic consequences'.<sup>1</sup> Studies on drug utilization are an important tool for all those who are involved in drug policies. Such studies help in evaluating health systems and making drug-related decisions.<sup>2,3</sup>

One of the important aspects of drug utilization studies is the analysis of prescribing patterns. It is now known that prescription audit with its feedback is an effective method of improving prescribing habits of health workers.

Considering the above facts, a retrospective study of patient treatment cards was done to find out prescribing trends at the in-patient departments of the TUTH.

### MATERIALS AND METHODS

The study was designed to find out general characteristics of prescriptions written

\* MBBS, MD, lecturer in clinical pharmacology, Institute of Medicine, PO Box 1524, Kathmandu, Nepal.

<sup>1</sup> B Pharm, incharge of pharmacy unit, TU Teaching Hospital, PO Box 3578, Kathmandu, Nepal.

<sup>2</sup> B Pharm, JICA expert, pharmacy unit, TU Teaching Hospital, PO Box 3578, Kathmandu, Nepal.

<sup>3</sup> This paper was presented at the 'JICA Research Conference' organized by Medical Education Project of JICA, TU Teaching Hospital, Kathmandu, 15.1.1992.

for the patients admitted to all the departments of the 300-bed TUTH, which is the only teaching hospital in the country. The study covered a period of 6 months, from 1 July to 31 December 1991. All the in-patient files of this period that were available in the medical record section of the Hospital were analysed. A separate proforma was used to record information about each patient.

For any single patient, each drug was recorded only once, irrespective of whether or not its dose / route of administration was changed or it was discontinued but later restarted. Combination product was counted as 'one' drug only. Anaesthetics and muscle relaxants administered during operation were not included in the study.

## RESULTS

The total number of patients was 3786. Females (2337) were more than males (1449). (F:M = 1.6:1.)

Table I shows agewise distribution of the patients.

Table II shows period of hospital stay of the patients. Over 50% of the admitted patients were discharged within 1 week and over 80% within 2 weeks.

The total number of drugs prescribed for 3786 patients was 30842. Average number of drugs prescribed per patient was 8.1 (range 0-38).

On an average, the number of drugs prescribed per patient in the age group 0-29 years was 6.5, 30-59 years was 9.5, and 60 or more years was 9.8.

Table III shows details of the number of drugs prescribed per patient during his/her stay at the hospital.

Table IV shows the average number of drugs per patient prescribed in each department of the Hospital.

56.3% of all the drugs prescribed were from inside the National List of Essential Drugs, Nepal (1986) and 43.7% were from outside the List.

51.5% drugs were prescribed by generic names and 48.5% were prescribed by brand names.

28% of all the drugs prescribed were combination products.

Table I. Agewise distribution of patients.

Age range (years)	% of the total patients
0 - 09	2.1
10 - 19	12.4
20 - 29	36.5
30 - 39	14.8
40 - 49	10.9
50 - 59	9.7
60 - 69	7.7
70 - 79	4.2
80 or over	1.5

Table II. Period of hospital stay.

Period of hospital stay (days)	% of the total patients
1 - 7	53.2
8 - 14	30.6
15 - 21	8.8
22 - 28	3.6
> 28	3.7

Table III. No. of drugs prescribed per patient during his/her stay at the hospital.

No. of drugs	% of the total patients
0	2.0
1 - 5	34.0
6 - 10	34.9
11 - 15	20.8
16 - 20	5.7
> 20	2.5

Table IV. Average no. of drugs / patient prescribed in each department.

Department	Average no. of drugs per patient
Surgery	10.8
Orthopaedics	8.7
Medicine (including ICU + Tropical ward)	8.4
Dermatology	7.6
Dental	6.7
OBG	6.6
ENT	6.6
Ophthalmology	6.5
Psychiatry	6.3

Table V shows the frequency with which different routes were used for administering drugs.

Table VI shows the frequency of use of some special drug groups.

Table V. Frequency with which different routes were used for administering drugs.

Route	Frequency of use
Enteral (oral + sublingual + rectal)	56.8%
Injectable	41.3%
Local	1.9%

Table VI. Frequency of use of some special drug groups.

Drug	% of the total drugs prescribed	% of the total patients receiving the drug
IV fluids	14.1	60.4
Antibacterials	20.0	72.4
Narcotic analgesics	7.6	42.2
Non-narcotic analgesics / NSAIDs	9.7	60.6
Sedative-hypnotics / Anxiolytics	6.0	34.9
Multi-vitamins &/or minerals / Tonics	8.3	52.8

## DISCUSSION

This study is a descriptive one. With the data obtained, it cannot be definitely said whether or not all the different types and

quantities of drugs used were really necessary. However, the data do give some idea about general characteristics of drug use. They may also be helpful in setting priorities for future studies of some specific areas of drug use.

In the present study, average number of drugs prescribed per patient was 8.1; 29% patients got more than 10 drugs, 8.2% patients got more than 15 drugs, and 2.5% patients got more than 20 drugs. One patient received as many as 38 drugs.

Different numbers of drugs have been found to be prescribed for hospitalized patients at different places.<sup>4,5</sup> For example, in a study it was found that an average of 9.4 drugs per person were prescribed in American hospitals while only 4.5 drugs per patient were prescribed in Scottish hospitals.<sup>4</sup>

What and how many drugs are prescribed are governed not only by the patients' problems but also by several other factors that influence prescribing habits of doctors. Some doctors have the habit of prescribing carefully and economically, but some have tendency to overprescribe.

It was found that more than one quarter (28%) of all the drugs prescribed were fixed-dose combination products. Each combination product was counted as one drug, irrespective of the number of components in it. So, even though the total number of products prescribed for 3786 patients came out to be 30842, the actual number of 'individual' drugs prescribed was much more than that.

Before giving a fixed-ratio combination product, each prescriber has the responsibility to see whether or not all the drugs in the combination are necessary, pharmacokinetic parameters of all the components are similar, and the increased cost can be justified. Apart from a few well-known exceptions, fixed-dose combination products should generally be discouraged.

The study showed that only about half (51.5%) of all the drugs were prescribed by generic names, the rest were prescribed by

brand names. In teaching hospitals, there are a number of advantages in prescribing by generic names. Of course, the hospital pharmacy needs to be properly strengthened for successful generic prescribing.

Regarding the route of administration, more than 40% of the drugs were given by way of injection. This has to be considered in the light of the fact that injectable routes have sometimes been found to be unnecessarily used, especially in developing countries.<sup>6</sup> We know the expense and the hazards injections involve. Injectable route should, therefore, be used only when there is a really valid indication for it.

It was found that 43.7% of all the drugs prescribed were from outside the National List of Essential Drugs. In a referral hospital such as the TU/TH, prescribing certainly cannot be limited to essential drugs only. It is, however, desirable to encourage the use of these drugs as much as possible.

In the present study, 60.4% of the hospitalized patients were found to receive IV fluids. It is interesting to note that in a study at two Scottish hospitals, use of IV fluids was found to be twice as much in one hospital as in the other; this difference in the use of IV fluids could not be accounted for by differing needs of patients at the two hospitals.<sup>7</sup>

Antibiotics were found to be commonly prescribed. One out of every 5 drugs prescribed was an antibiotic. Nearly three quarters (72.4%) of all the hospitalized patients

received antibacterials. Among the patients receiving antibacterials, 39.1% got one, 27.9% got two, 16.9% got three, 8.2% got four, 4.0% got five, and 3.7% got more than five antibacterials. Against the background of a widespread problem of inappropriate use of antibiotics,<sup>6</sup> it is necessary to adopt a rather critical approach to the use of these agents.

42.2% patients were found to receive narcotic (opioid) analgesics, and 34.9% patients sedative-hypnotic/antianxiety agents. It will probably be worthwhile to carry out a more specific study in future to assess the appropriateness of the use of these psychotropic agents.

52.8% of the hospitalized patients received multi-vitamins &/or -minerals / tonics (Use of single vitamin or mineral preparation was not counted.) It is known that these agents are often wastefully used.<sup>8</sup> Before prescribing multivitamins / tonics, doctors should critically assess the real need for these agents.

## ACKNOWLEDGMENTS

The authors wish to thank Mr Sam Bahadur Thapa, Mr Mukti Timilsina and Mr Badebabu Thapa for helping in data collection, Mr Kundan Satyal for helping in getting patient files from the medical record section, Mr Praveen Pradhan for his assistance in computer work, and Medical Education Project of JICA at the TU Teaching Hospital for financial assistance.

## REFERENCES

1. WHO. The selection and use of essential drugs. Tech Rep Ser 615. Geneva: World Health Organization, 1977.
2. Leporte JR, Porta M, Capella D. Drug utilization studies: a tool for determining the effectiveness of drug use. *Br J Clin Pharmacol* 1983; 16: 301-304.
3. Baksaas I, Lunde KM. National drug policies: the need for drug utilization studies. *Trends in Pharmacological Sciences*, September 1986; pp 331-334.
4. Lawson DH, Jick H. Drug prescribing in hospitals: an international comparison. *Am J Public Health* 1976; 66: 644-648.
5. WHO. The rational use of drugs: report of the conference of experts, Nairobi, 25-29 November, 1980. Geneva: World Health Organization, 1987: 197-198.
6. Joshi MP. Irrational and rational use of drugs. *J Nep Med* 1991; 13: 331-345.
7. Moir DC, Christopher LJ, Lawson DH. Data collection in Scottish hospitals. In: Bergman U, Grimsson A, Wall AW, Westerholm B, eds. *Studies in drug utilization: methods and applications*. Copenhagen: World Health Organization, Regional Office for Europe, 1979: 93-101.
8. Joshi MP, Srivastava K, Gyawali K. Problem drugs in Nepal. *J Nep Med Assoc* 1991; 29: 286-290.