Morbidity Profile, Prescribing Patterns and Working of the Community Drug Programme in a Health Post in Western Nepal

Dr. Ravi P. Shankar, MD, Department of Pharmacology, Manipal College of Medical Sciences, Pokhara, Nepal.

Dr. Pawan Kumar, MD, Department of Pharmacology, Department of Community Medicine, Manipal College of Medical Sciences, Pokhara, Nepal.

Mr. Manu S. Rana, MPH, Department of Community Medicine, Manipal College of Medical Sciences, Pokhara, Nepal.

Mr. Nagesh Shenoy, MPharm, Department of Pharmacology, Manipal College of Medical Sciences, Pokhara, Nepal.

Dr. Praveen Partha, DNB, Department of Medicine, Manipal College of Medical Sciences, Pokhara, Nepal.

Dr. Arun K. Dubey, MD, Department of Pharmacology, Manipal College of Medical Sciences, Pokhara, Nepal.

Address for correspondence:Dr. Ravi P. Shankar, Department of Pharmacology, Manipal College of Medical Sciences, P.O.Box 155, Deep Heights, Pokhara, Nepal. Fax: 00977-61-527862 E-mail: pathiyilravi@rediffmail.com, pathiyilravi@hotmail.com

Abstract

The study was carried out at the Naudanda Health Post over a two-month period (July 15, 2000, to September 15, 2000). The objectives were to obtain information on the demography of patients, morbidity, drug-prescribing patterns and the working of the Community Drug Programme. Acute respiratory infections were the most common illness. Paracetamol was most commonly prescribed and 80.6% of the drugs prescribed were essential drugs.

Introduction

According to the institutional framework of the Ministry of Health, Nepal, the Sub Health Post (SHP) functions as the first contact point for basic health services (Department of Health Services 2000). However many patients directly go to the Health Post (HP) for their health care needs. At the beginning of the year 1998, there were 3,195 SHPs, 747 HPs, 120 Primary Health Care Centres (PHCC) and 17 Health Centres in Nepal. The Naudanda HP is situated in the Kaski district of Western Nepal. There are two PHCCs, 12 HPs and 34 SHPs in the district. A HP has two or three SHPs under it. Three or four HPs are under a PHCC. In Nepal, health assistants (HAs) usually man the HPs. HAs undergo an 18-month course after completing their school education with the last three months spent attached to a HP.

Baksaas and Lunde (1986) and Pradhan et al. (1988) have stressed the importance of drug utilization studies in evolving a comprehensive drug policy. The quality of life of the rural population can be improved by enhancing standards of medical treatment at different levels of the primary health care system. Setting standards and assessing the quality of care through performance review should be a part of daily clinical practice (Patterson 1986). The study of prescribing patterns seeks to monitor, evaluate, and if necessary suggest modifications in prescribing patterns of the practitioners to make health care rational and cost effective.

In Nepal absence of medicines in the Health Posts continues to be a major problem (UNDP Nepal 2002). To redress the shortage, the Community Drug Programme (CDP) was introduced (Department of Health Services 2001). Under this programme, His Majesty's Government (HMG) through the local self-governing bodies, provides a fixed amount (seed money) to the HPs to buy essential medicines. The HP sells these drugs to the patients and recoups the expenses. The money so obtained is used to buy further medicines and continue the CDP. The CDP is now operational in 250 health facilities throughout the country. Essential drugs are available throughout the year and the replenishment mechanism for drugs is working properly.

The objectives of the study were to:

1. Obtain information on the age and sex profile of the patients being treated at the Health Post;
2. Study the overall morbidity and the sex and age-wise morbidity pattern;
3. Obtain information on the drug-prescribing patterns, the rationality of therapy and the average cost per prescription; and
4. Gain an insight into the working of the CDP in the Naudanda Health Post.

Methods

All drug prescriptions from the Naudanda Health Post over a two-month period (July 15, 2000, to September 15, 2000) were collected. The data collected were entered into a predesigned proforma for further analysis. The age, sex and the diagnosis of the patient were noted. The morbidity pattern during the study period was determined. Sex and age differences in the morbidity pattern were analyzed using the χ^2 test (P<0.05).

The drugs prescribed, the duration and frequency of administration were recorded. Information on the number of drugs prescribed by generic names and from the essential drug list of Nepal (Department of Drug Administration 2002) and from the World Health Organization (WHO) model list of essential drugs (WHO Drug Information 1999) was collected.

The cost of the drugs and procedures undergone by the patient were calculated. In the Health

Post drugs were available from two sources: the government supply and the CDP. Information on the functioning of the CDP in the Health Post was obtained by interviewing the AHW in charge and looking into the Health Post Pharmacy records.

The rationality of prescriptions was determined by the authors in consultation with doctors of the Department of Medicine, Manipal Teaching Hospital and doctors working in peripheral Health Posts. To determine whether the AHWs were practicing what they were taught, we consulted two textbooks for AHWs which detailed the treatment to be prescribed for different disease conditions (Department of Drug Administration 1993; Health Learning Materials Centre 1994).

Sex and age difference in the prescribing patterns were analyzed using the χ^2 test (P<0.05).

Results

The Naudanda Health Post serves a population of 36,009 in the Kaski district of Western Nepal. A total of 1,186 patients were treated during the study period. Five hundred and fifty one patients (46.4%) were male, while 635 were females. The age and sex distribution of the patients is shown in Figure 1.

Acute respiratory infection (ARI) was the commonest illness for which treatment was sought [149 out of the 1186 patients (12.6%)]. The other common illnesses were wounds and wound infection in 120 patients (10.1%), acid peptic disease (APD) in 88 patients (7.4%), diarrhea/dysentery in 78 patients (6.6%) and worm infestation in 66 patients (5.6%). The sex-wise morbidity pattern is shown in Table 1. ARI, wounds and diarrhoea/dysentery were significantly more common in males while APD and neuritis were more common in women (P<0.05). ARI, diarrhea/dysentery and worm infestation was more frequent in the younger age group. APD, chronic obstructive pulmonary disease (COPD), hypertension and arthritis were more common in the older age groups. Under-fives constituted 19.3% of the patients. ARI and diarrhea/dysentery were the commonest illnesses in under-fives, accounting for 34.5% and 20.5% of the total illness seen in under-fives. Wounds, worm infestation and skin diseases were also common.

Figure 1: Age and Sex Distribution of the Patients

Age in Years
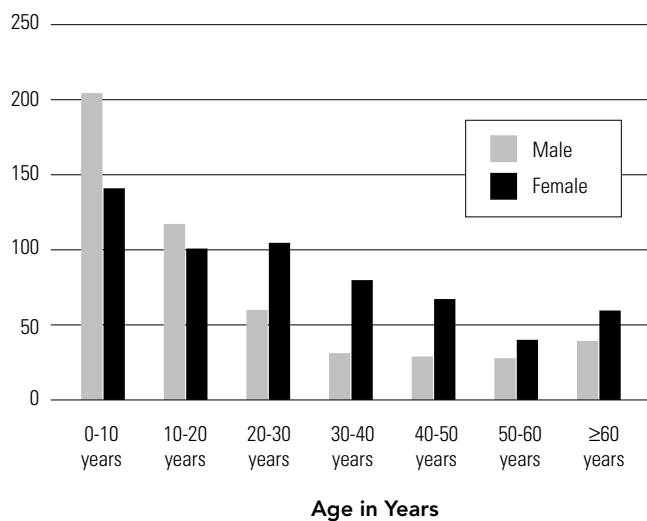
Mean ± SD number of drugs per prescription was 1.93 ± 1.16. Two thousand two hundred and eighty-nine drugs were prescribed during the study period. Paracetamol was the commonest drug prescribed, accounting for 303 out of the total of 2289 drugs (13.2%). Other common drugs used were amoxicillin [231 prescriptions (10.1%)], sulfonamides [216 prescriptions (9.4%)], vitamin B

complex [176 prescriptions (7.7%)] and antacids [143 prescriptions (6.2%)]. Out of the total of 2,289 drugs prescribed in the Health Post during the study period, 1,845 (80.6%) were prescribed from the essential drug list of Nepal and 1843 (80.5%) were prescribed from the WHO list of essential drugs. Combination preparations accounted for 10% of the total prescriptions. Seven hundred and eighty nine out of the 2,289 drugs (34.5%) were prescribed by brand names.

Table 1: Sex-wise Morbidity Profile of Patients Visiting the Naudanda Health Post During the StudyPeriod

Disease condition	Males (n=551) Number (percentage of total number of male patients)	Females (n=635) Number (percentage of total number of female patients)
ARI	88 (16)*	66 (10.4)
Wound	81 (14.7)**	46 (7.2)
Diarrhoea/ dysentery	74 (13.4)△	60 (9.4)
PUO	29 (5.3)	22 (3.5)
Worms	24 (4.3)	31 (4.9)
APD	19 (3.4)	73 (11.5) △△
Others	236	337

*χ^2 =8.1, P<0.05   **χ^2 = 17.1, P<0.05
△ χ^2 =4.7, P<0.05   △△ χ^2 = 26.9, P<0.05

Mean ± SD cost per prescription was 34.7 ± 17 Nepalese rupees (0.46 ± 0.23 US dollars). The cost of the procedures undergone by the patient and of the outpatient ticket was included in the calculation. An outpatient ticket costs Rs. 2 (1 US dollar = 75 Nepalese rupees). The charges for injection, tooth extraction and wax removal are Rs. 5, Rs. 35 and Rs. 25 respectively. For dressing a wound, the cost is Rs.5, while for stitching a wound or incising an abscess followed by dressing, the cost is Rs.10. If only the cost of drugs was taken into account, the mean ± SD cost per prescription was 28.2 ± 15.6 Nepalese rupees (0.37 ± 0.2 US dollars).

Oral contraceptives, drugs used for the treatment of tuberculosis and leprosy, iron tablets, oral rehydration salts (ORS) and vitamin A are supplied free of cost to the patients. There are two sources from which the Health Post receives the medicines. HMG supplies drugs worth Rs. 25,000 to the health centre around the end of July. These drugs last for about two months. After that, the drugs are obtained from the CDP (Department of Health Services 2001; *The Himalayan Times* 2002). The cost price of drugs supplied under the CDP is slightly more than that of the government supplied drugs. If a drug is not available in the Health Post Pharmacy, then it has to be obtained from outside. Buying drugs from outside entails a higher cost to the patient. In our study 98% of the drugs prescribed were available from the Health Post Pharmacy.

The prescribing frequency of chosen drug groups versus sex is shown in Table 2. Antimicrobials, topical preparations and ORS were more commonly prescribed to male patients. Vitamins and antiulcer drugs were more commonly prescribed to female patients (P<0.05).

Table 3 shows the analysis of prescribing frequency versus age. Prescribing frequency of antimicrobials declined with increasing age. There was no clear trend seen in the prescribing of NSAIDs. The prescription of vitamins and antiulcer drugs increased with increasing age.

Table 2: Sex-wise Distribution of Drug Use

Class of Drugs	Males Total number of drugs (% of total drugs used in males)	Females Total number of drugs (% of total drugs used in females)
Antimicrobials	413 (41.3)*	422 (35.2)
NSAIDs	278 (27.8)	310 (25.8)
Vitamins	53 (5.3)	112 (9.3) **
Topical preparations	63 (6.3)△	41 (3.4)
Anthelminthics	46 (4.6)	56 (4.7)
Antiulcer drugs	38 (3.8)	105 (8.75) △△
ORS	42 (4.2)¶	30 (2.5)
Antiasthma drugs	7 (0.7)	13 (1.1)
Others	99	161
Total	1039	1250

*χ^2 =8.79, P<0.05, **χ^2=12.7, P<0.05
△ χ^2=10.1, p<0.05, △△ χ^2=11.5, p<0.05
¶ χ^2=5, p<0.05

Table 3: Age-wise Distribution of Drug Use

Age Groups (years)	Drug Groups No. of drugs (percentage of total drugs used in the particular age group)						
	Antimicrobial	NSAIDs	Topical preparations	ORS	Vitamins	Anthelminthics	Antiulcer
0-10	334 (49.1)	143 (21)	40 (5.9)	48 (7)	13 (1.9)	35 (5.1)	11 (1.6)
10-20	164 (38.1)	131 (30.4)	23 (5.3)	9 (2.1)	28 (6.5)	31 (7.2)	18 (4.2)
20-30	115 (35.9)	94 (29.4)	17 (5.3)	2 (0.6)	34 (10.6)	11 (3.4)	29 (9.1)
30-40	73 (33.3)	58 (26.5)	5 (2.3)	8 (3.6)	23 (10.5)	10 (4.6)	21 (9.6)
40-50	63 (31.3)	62 (20.6)	6 (3)	2 (1)	20 (9.9)	5 (2.5)	21 (10.4)
50-60	35 (26.1)	37 (27.6)	5 (3.7)	1 (0.7)	21 (15.7)	5 (3.7)	16 (11.9)
≥60	53 (24.7)	63 (29.3)	9 (4.2)	3 (1.4)	28 (13)	5 (2.3)	26 (12.1)
Total	837	588	105	73	167	102	142

Discussion

Over the last ten years in Nepal, physical access to health institutions has improved dramatically. SHPs have been established in Village Development Committees (VDCs) and a survey in 1996 found 69% of households to be within an hour's walk from a health care institution (Central Bureau of Statistics, 1997). However, only 8% of those seeking health care were content with the services

they received (National Planning Commission 1998). Lack of medicines was stated to be a reason for dissatisfaction with the health services by 59% of patients and 84% of health workers.

CDP was first initiated by the WHO in 1982–86 in 18 districts of Nepal to overcome the shortage of drugs in health centres (Department of Health Services 2001; *The Himalayan Times* 2002). However, actual program implementation activities were seriously carried out only from 1996–97. The Revolving Drug Fund (RDF) for the replenishment of drugs is in successful operation in most of the health facilities in Kaski district. A National Policy for Drug Financing Scheme has been drafted and it is planned to be the guiding policy for all drug schemes in Nepal. For the Naudanda Health Post, seed money of 12,000 Nepalese rupees (160 US dollars) was given by the VDC in 1997. The seed money was utilized to buy medicines. Tenders are called for the supply of the medicines and the lowest bid is accepted. Medicines for the pediatric age group are given greater emphasis. Under the CDP drugs are bought four times a year. The HP sells the drugs to the patient and recoups the money. The CDP has successfully overcome the shortage of drugs in the Naudanda HP and in only 2% of cases did the patients have to buy drugs from outside. The resources mobilized are being used to improve the facilities in the HP and to subsidize services for the poor and the needy.

Lack of community support due to noninvolvement of the recipients of health care in the planning and delivery of health services is a major problem in Nepal (UNDP Nepal 2002). A committee of eight individuals has been formed to oversee the working of the Naudanda HP. The Health Post in-charge and the pharmacist are represented and also five elected members of the VDC. There is a government representative on the committee. Two members are women. This is especially important, as women and children are major recipients of health care services in Nepal. The *Local Self-Government Act*, 1999, envisages a significant role for locally elected bodies in the management of health institutions up to the level of the District Hospital. Devolution of power and management to the local bodies has been achieved to a substantial degree in the Naudanda HP.

The average number of drugs per prescription is an important index of the scope for review and educational intervention in prescribing practices. The mean ± SD number of drugs per prescription in our study was 1.93 ± 1.16. In a study in Primary Health Care Centres in Taiwan, the average number of drugs per prescription was 4.3 (Lai et al. 1995). Our results are comparable to the results from an Indian study where the mean ± SD number of drugs was 1.99 ± 0.7 (Srishyla et al. 1995).

The five most common illnesses for which treatment was sought in our study were ARI, wounds, APD, diarrhea and worm infestation. These are disease of poverty and are more common in developing countries with overcrowding and poor socioeconomic development. In the Taiwanese study (Lai et al. 1995) the most common illnesses encountered were ARI, skeletal and joint disease, hypertension and APD.

Under-fives account for a substantial proportion of the morbidity in Nepal. Diarrhoea and ARI were the most common illnesses seen in this age group. The incidence in the two-month study period of diarrhea/1,000 children (<5 years) was 205, and the incidence of ARI/1000 children (<5 years) was 345. The national figures for the year 2055/56 BS (1998/99 AD) were 144 and 172 (Informal Sector Research and Study Centre 2001). One of the reasons for the discrepancy was that the national figures were computed for the whole year, whereas our values were calculated from the data for only a two-month period. Seasonal factors may play a major role in the pathogenesis of these diseases.

Thirty-four percent of the drugs were prescribed by brand names. In an Indian study, only 3.5% of the drugs were prescribed by brand names (Kuruvilla et al. 1994). However, most of the brand names used were those of the public sector drug companies, Royal Drugs and Sajha Drugs. These drugs are available in the HP Pharmacy and so brand-name prescribing did not increase the cost of drugs to the patient. Out of the total of 2,289 drugs prescribed in the HP during the study period, 1845 (80.6%) were prescribed from the essential drug list of Nepal and 1843 (80.5%) were prescribed from the WHO list of essential drugs. Availability of these essential drugs in the Health Post Pharmacy entailed savings in terms of both money and time to the patients.

The average cost per prescription was 34.75 ± 17.04 Nepalese rupees. If only the cost of drugs was included, the average cost per prescription was 28.16 ± 15.6 Nepalese rupees. In a study in India, the mean ± SD cost per prescription was 8.8 ± 8.6 Indian rupees (0.18 ± 0.179 US dollars) (Kuruvilla et al. 1994). Because of the increase in the cost of drugs since the study was carried out, direct comparison of the results is difficult. The annual per capita income of Nepal is around Rs. 16,500 (US dollars 220). The average individual monthly income is around Rs. 1,400 and the treatment could be afforded by the majority of the individuals. For the people unable to afford the treatment, there is a system of partial or complete waiver of treatment costs.

Sixty-nine out of the total of 1,186 prescriptions (5.8%) were irrational. The Department of Health, HMG, has given guidelines for the diagnosis and treatment of common diseases and the AHWs in the health centres broadly followed these guidelines. Common irrationalities seen were use of a combination of antibiotics having similar antimicrobial spectrum for the treatment of sexually transmitted diseases (STDs) and pelvic inflammatory disease (PID), use of antibiotics in the treatment of pyrexia of unknown origin (PUO) without investigating for the causative organism and use of a combination of antimicrobials to treat diarrhea and dysentery.

Establishment of basic diagnostic facilities in the PHCCs and HPs and establishing a system of referral for more specialized investigations are required. Naudanda Health Post is accessible by an all-weather road, but other centres, Health Posts and Sub Health Posts may not be so accessible, and getting samples in time and sending reports may be difficult. Strengthening the CDP further to ensure that the Health Posts are well stocked with drugs at all times is also important.

Studies of prescribing patterns and drug utilization studies in the remote areas of Nepal are urgently required. These studies are being planned by the Departments of Community Medicine and Pharmacology and will be taken up in the near future.

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