

Drug prescribing pattern and disease pattern in KMC Duwakot Health Center

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Abstract

Objective

To ascertain the disease pattern and drug prescribing pattern of the patients attending Kathmandu Medical College Health Center, Duwakot.

Methods

It is a cross sectional study conducted at Kathmandu Medical College (KMC) health Center, Duwakot during the month of Ashad to Mangshir, 2060. The sample size included was 292 patients attending the Health Center during this period. Prescription details were used as study tools to acquire information regarding patient's name, age, complaints for which consultation was sought, investigations, diagnosis, name of the drug which is prescribed and instruction for diet.

Results

Age of patients in this study ranged from 0-80 years. A total of 165 (56.50%) were male and 127 (43.49%) were female. Out of 165 male of different age group ranging from 0-80 years, most of the patient i.e. 25(15.15%) were suffering from viral fever followed by cut/injury, allergy, diarrhoea, abdomen pain, fungal infection, HTN (hypertension), cold/cough/sore throat, sinusitis, muscular skeletal pain, joint pain, contact dermatitis, acute peptic disease (APD), headache, worm infestation, tonsillitis, pharyngitis, dizziness, eye infection, chest infection, calf and backache, viral rashes, hypo pigmentation, tension/depression, Urinary tract infection (UTI), coliolilethis, diabetes, p/r bleeding and insect bite poisoning. Out of 127 female of different age group ranging from 0-80 years 21 (16.54%) patients were suffering from viral fever, followed by backache, cold/cough / sore throat, allergy, weakness, acne, diarrhoea, sinusitis, flue, pneumonia, headache, acid peptic disease, dysmenorrhoea, Lower Respiratory Tract Infection and Upper Respiratory Tract Infection, muscular skeletal pain, joint pain, eye infection, Urinary Tract Infection, hypertension, abdomen pain, tonsillitis, tinea corporis, rhinitis, ear problems, insect bite poisoning, CSOM, trichiasis, uteric colic, otitis media, entropion and epiphora, worm infestation and pharyngitis. All together 384 drugs (23 category) were distributed to the different patient of different age group ranging from 0-80 years, to cure the different types of diseases. Among the different categories of drugs prescribed antipyretic (31.8%), antibiotics (17.2%) and (Non steroid Antiinflammatory Drugs (NSAIDs) (11.2%) were the most common.

Conclusion

The assessment of the existing prescribing practices in a health facility helps to identify the specific drug use problems, which need to be understood before any meaningful intervention can take place. A prescription provides an insight into a prescriber's attitude to the disease being treated and the nature of health care delivery system in the community³. The average number of drugs per prescription is an important index of a prescription audit. It is preferable to keep the number of drugs per prescription as low as possible to minimize the risk of drug interactions, development of bacterial resistance and hospital costs⁹.

Key words: drug prescribing, health centre, disease pattern

Rational drug prescribing can be defined as appropriate drugs taken in the right dose, at correct time intervals and for sufficient duration.⁶ For proper drug use, accurate diagnosis, rational drug prescribing, suitable packing and patient compliance are important criteria.

Rational drug use is sometimes defined as getting the right drug to the right patient at the right time in the

right dose at the right price. Defining prescribing pattern and identifying the irrational prescribing habit is necessary to compel a corrective message to the prescribers.

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The aim of the drug therapy is to prevent, cure or control various diseases states⁴. World Health Organization in 1966 has defined drug as a substance used to modify or explore physiological system or pathological states for the benefit of the recipient. To achieve the goal of drug therapy, adequate drug doses must be delivered to the target tissues so that therapeutic yet non-toxic levels are obtained¹. Many countries are witnessing a steady increase in drug consumption and irrational use of drugs by both the prescribers and the consumers with grave possible economic and social consequences.

Infectious diseases, maternal and perinatal ailments, and nutritional deficiencies, termed “Group I disorders” by the World Bank, are the leading causes of illness and death in Nepal. Pneumonia and other bacterial diseases particularly tuberculosis, intestinal infections, bronchitis, and asthma are the leading causes of such deaths for both men and women. Deaths among women peak during the childbearing age (15-44) - with about 28 percent of deaths in this age group related to abortion and its associated complications. Sixty-three percent of pregnant women have anemia¹.

Intestinal infectious diseases, other bacterial diseases, pneumonia and perinatal factors cause most deaths among children under age 5⁷.

About 7.7 million disability-adjusted life years (DALYs) are estimated to have been lost in Nepal in 1996. Compared with the global burden of disease estimates for other developing countries (1991), the burden in Nepal is high, especially for Group I disorders. Such disorders were responsible for five times as many lost DALYs as in China and 36 percent more than in India. The World Bank has recommended an increased focus on tuberculosis and other preventable communicable diseases that are becoming more of a threat such as HIV/AIDS and hepatitis B⁵.

In one study done in 60 facilities in 8 hill districts and including over 2000 interviews, it was found that consumer demand for drugs in rural Nepal is high and not consistent with rational use.

In spite of low literacy rates and poor communications, nearly half the people surveyed, knew the names of the drugs they wanted¹.

Objectives

The main purpose of this study is to access the medication pattern for different diseases for different patient who came to Kathmandu Medical College Health Center, Duwakot, in terms of age and sex.

Methodology

It is a cross sectional study. The study is of short duration conducted at KMC Health Center, Duwakot during the month of Ashad to Mangshir, 2060 with sample number of 292.

Research design

This research design applies cross sectional descriptive design. It attempts to describe the clinical profile of medication pattern in response to various health problems.

Sampling process

The patients who visit the Kathmandu Medical College Health Center, Duwakot were included in the sample.

Instruments

The proforma of prescription details were used as study tools to acquire information regarding patient’s name, age, complaints for which consultation was wanted, investigations, diagnosis, name of the drug which is prescribed and instruction for diet.

Results and conclusion

The study of prescribing pattern is a component of medical audit, which seeks monitoring, evaluation, and necessary modifications in the prescribing practices of the prescribers to achieve rational and cost effective medical care².

Table 1: Distribution of male and female patient according to age group

Age group	Male	%	Female	%	Total	%
0-10	11	6.7	22	17.3	33	11.3
11-20	50	30.3	33	25.9	83	28.4
21-30	53	32.1	43	33.9	96	32.9
31-40	22	13.3	14	11.0	36	12.3
41-50	4	2.4	3	2.4	7	2.4
51-60	15	9.1	4	3.2	19	6.5
61-70	9	5.5	2	1.6	11	3.8
71-80	1	0.6	6	4.7	7	2.4
Total	165	100	127	100	292	100

Source: KMC Duwakot Health Center porforma

Age in this study ranged from 0-80 years. The maximum number of patients 96(32.9%) belonged to 21-30 years age group followed by 83 (28.4%) patients of 11-20 years age group. 36 (12.3%) patients belonged to 31-40 years and 33 (11.3%) belongs to 0-10 years age group. Likewise, 19 (6.5%) patients belongs to 51-60 years age group

followed by 11 (3.8%) patients of 61-70 years age group. 7 (2.4%) patients belonged to 41-50years and 71-80 years age group. 165(56.50%) were male and 127(43.49%) were female. Details of the male and female patients according to the age group were shown in table number 1.

Table 2a: Disease pattern of male for different age group

Disease Pattern	Age Group								Total
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	
	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	
Enteric/Viral fever	12 (3)	24(6)	36 (9)	8 (2)	4 (1)	8 (2)	8 (2)	-	25
Tonsillitis	20 (1)	40 (2)	40 (2)	-	-	-	-	-	5
Pharyngitis	-	40 (2)	60 (3)	-	-	-	-	-	5
Worm infestation	83.3 (5)	16.7 (1)	-	-	-	-	-	-	6
APD	-	-	16.7 (1)	33.3 (2)	-	-	50 (3)	-	6
Allergy	-	30(3)	50(5)	-	-	10(1)	-	10(1)	10
Muscular Skeletal pain	-	14.3 (1)	57.1 (4)	14.3 (1)	-	14.3 (1)	-	-	7
Abdomen pain	11.1(1)	22.2(2)	33.3(3)	11.1(1)	-	11.1(1)	11.1(1)	-	9
Headache	-	16.7(1)	50(3)	33.3(2)	-	-	-	-	6
Cut/injury	-	8.3(1)	41.7(5)	33.3(4)	16.7(2)	-	-	-	12
HTN	-	-	25(2)	62.5(5)	-	12.5(1)	-	-	8
URTI & LRTI	66.7(2)	-	33.3(1)	-	-	-	-	-	3
UTI	-	-	100(1)	-	-	-	-	-	1
Backache	-	-	100(3)	-	-	-	-	-	3
Eye infection	-	75(3)	25(1)	-	-	-	-	-	4
Insect bite/poisoning	-	-	100(1)	-	-	-	-	-	1

Source: KMC Duwakot Health Center porforma

Table 2b: Disease pattern of male for different age group

Disease Pattern	Age Group								Total
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	
	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	
Cold/cough/sore throat	-	62.5(5)	25(2)	12.5(1)	-	-	-	-	8
Pneumonia	100(2)	-	-	-	-	-	-	-	2
Diabetic	-	-	-	-	-	100(1)	-	-	1
Sinusitis	-	25(2)	37.5(3)	37.5(3)	-	-	-	-	8
Fungal infection	-	55.6(5)	22.2(2)	22.2(2)	-	-	-	-	9
Tension/depression	-	100(2)	-	-	-	-	-	-	2
Contact dermatitis	-	50(3)	50(3)	-	-	-	-	-	6
Calf	-	-	-	66.7(2)	33.3(1)	-	-	-	3
Colioliethis	-	-	-	-	-	-	100(1)	-	1
Hypo pigmentation/white patch	-	50(1)	50(1)	-	-	-	-	-	2
Mouth ulcer	-	-	100(2)	-	-	-	-	-	2
P/r bleeding	-	-	100(1)	-	-	-	-	-	1
Dizziness	-	40(2)	-	60(3)	-	-	-	-	5
Diarrhoea	60(6)	40(4)	-	-	-	-	-	-	10
Viral rash	100(2)	-	-	-	-	-	-	-	2
Chest infection	100(3)	-	-	-	-	-	-	-	3
Joint pain	-	-	-	-	-	33.3(2)	66.7(4)	-	6

Source: KMC Duwakot Health Center porforma

Out of 165 male of different age group ranging from 0-80 years, 25(15.15%) patients were suffering from viral fever, 12(7.27%) from cut/injury, 10(6.06%) from allergy and 10(6.06%) from diarrhoea, 9(5.45%) from abdomen pain as well as fungal infection, 8 (4.85%) from HTN, cold/cough / sore throat and sinusitis. Similarly, 7(4.24%) patients were suffering from muscular skeletal pain, 6(3.64%) each from joint pain, contact dermatitis, APD, headache

and worm infestation. 5(3.03%) each from tonsillitis, pharyngitis and dizziness. 4 (2.42%) patients were found to be with infected eye. 3 (1.82%) from chest infection, calf and backache. 2(1.2%) were from viral rashes, hypo pigmentation and tension/depression. 1(0.61%) each from UTI, coliolilethis, diabetes, p/r bleeding and insect bite poisoning.

The details of disease pattern for male of different age group are shown in table number 2a and 2b.

Table 3a: Disease pattern of female for different age group

Disease Pattern	Age Group								Total N
	0-10 % (N)	11-20 % (N)	21-30 % (N)	31-40 % (N)	41-50 % (N)	51-60 % (N)	61-70 % (N)	71-80 % (N)	
Enteric/Viral fever	38.1(8)	28.6(6)	14.3(3)	14.3(3)	-	4.7(1)	-	-	21
Tonsillitis	-	33.3(1)	66.7(2)	-	-	-	-	-	3
Pharyngitis	-	-	100(1)	-	-	-	-	-	1
Worm infestation	-	100(1)	-	-	-	-	-	-	1
APD	-	20(1)	60(3)	-	-	-	20(1)	-	5
Allergy	-	4(4)	4(4)	-	1(1)	-	-	-	9
Muscular Skeletal pain	-	20(1)	20(1)	40(2)	-	20(1)	-	-	5
Abdomen pain	-	-	100(3)	-	-	-	-	-	3
Headache	-	-	60(3)	40(2)	-	-	-	-	5
Dysmennorcha	-	60(3)	40(2)	-	-	-	-	-	5
Hypertension	-	-	75(3)	25(1)	-	-	-	-	4
Upper & lower respiratory tract infection	60(3)	-	40(2)	-	-	-	-	-	5
Urinary Tract Infection	25(1)	25(1)	50(2)	-	-	-	-	-	4
Backache	-	-	30.8(4)	38.4(5)	-	30.8(4)	-	-	13

Source: KMC Duwakot Health Center porforma

Table 3b: Disease pattern of female for different age group

Disease Pattern	Age Group								Total N
	0-10 % (N)	11-20 % (N)	21-30 % (N)	31-40 % (N)	41-50 % (N)	51-60 % (N)	61-70 % (N)	71-80 % (N)	
Eye diseases									
a. Eye infection	-	50(2)	25(1)	-	-	-	-	25(1)	4
b. Entropion	-	-	-	-	-	-	-	100(1)	1
c. Epiphora	-	-	-	-	-	-	100(1)	-	1
Insect bite/poisoning	-	100(3)	-	-	-	-	-	-	3
Cold/cough/sore throat	33.3(4)	25(3)	25(3)	16.7(2)	-	-	-	-	12
Pneumonia	100(5)	-	-	-	-	-	-	-	5
CSOM	100(2)	-	-	-	-	-	-	-	2
Weakness	-	25(2)	-	-	25(2)	12.5(1)	-	37.5(3)	8
Sinusitis	-	-	60(3)	40(2)	-	-	-	-	5
Trichosis	-	-	-	-	-	-	-	100(1)	1
Joint pain	-	-	-	-	60(3)	40(2)	-	-	5
Acne	-	42.9(3)	57.1 (4)	-	-	-	-	-	7
Diarrhoea	60(3)	-	40(2)	-	-	-	-	-	5
Ear problem	-	100(3)	-	-	-	-	-	-	3
Tinea corporis	-	-	50(1)	-	50(1)	-	-	-	2
Rhinitis	-	100(2)	-	-	-	-	-	-	2
Ureteric colic	-	100(1)	-	-	-	-	-	-	1
Otitis media	-	100(1)	-	-	-	-	-	-	1
Flue	-	40(2)	60(3)	-	-	-	-	-	5

Source: KMC Duwakot Health Center porforma

Out of 127 female of different age group ranging from 0-80 years 21 (16.54%) patients were suffering from viral fever, 13(10.24%) from backache, 9 (7.09%)from allergy and 5 (3.94%)from diarrhoea, 3(2.36%) from abdomen pain, 8(6.3%) from weakness, 7(5.51%) from acne, 4(3.15%) from Hypertension, 12(9.45%) from cold/cough / sore throat. 5(3.94%) patients each from sinusitis, flue, pneumonia, headache, Acid Peptic Disease, dysmenorrhoea, Lower Respiratory Tract Infection and Upper Respiratory Tract Infection.

5 (3.94%) were suffering from muscular skeletal pain as well as joint pain, 1 (0.79%)from worm infestation. 3(2.36%) patients each from tonsillitis, tinea corporis, rhinitis and with ear problems. 1 (0.79%)from pharyngitis. 4 (3.15%) were found to be with infected eye. 4(3.15%) from Urinary Tract Infection, 3 (2.36%) from insect bite poisoning, 2(1.57%) from CSOM, 1(0.79%) each from trichosis, ureteric colic, otitis media, entropion and epiphora. The details of disease pattern for female of different age group are shown in table number 3a and 3b.

Table 4: Category of drugs distributed to the patient of different age group ranging from 0-80 years

Drug Category	Number of users	%
1. Antipyretic	122	31.8
2. Antibiotic	66	17.2
3. NSAIDS	43	11.2
4. Antiallergic	27	7.0
5. Antiamoebic	16	4.2
6. Anthelminthic	13	3.4
7. Antipeptic ulcer drug	12	3.1
8. Vitamin B complex	12	3.1
9. Antihistaminics	11	2.9
10. Antacids	10	2.6
11. Antifungal	9	2.3
12. Cough expectorant	9	2.3
13. ORS	7	1.8
14. Iron/folic	5	1.3
15. Antiasthmatic	4	1.0
16. Antihypertensive	4	1.0
17. Antibacterial	3	0.8
18. Antiviral	3	0.8
19. Eye Drops	3	0.8
20. Anxiolytic	2	0.5
21. Anti acne cream	1	0.3
22. Alkaline mixture	1	0.3
23. Hypoglacemic drug	1	0.3
Total	384	100

Source: KMC Duwakot Health Center porforma

There are all together 23 categories of drugs distributed to the different patient of different age group ranging from 0-80 years. Among the different categories of drugs prescribed antipyretic (31.8%), antibiotics (17.2%) and NSAIDS (11.2%) were the most common. It was followed by antiallergic (7%), Antiamoebic (4.2%), anthelminthic (3.4%), Anti peptic ulcer drug (3.1%), Vitamin 'B' (3.1%), Antihistaminic (2.9%), Antacid (2.6%), Antifungal (2.3%), cough expectorant (2.3%), ORS (1.8%), iron/folic (1.3%), Antiashmatic (1.0%), Antihypertensive (1.0%), Antibacterial, Antiviral and

Eye drops (0.8%), Anxiolytus (0.5%) and Antiacne, Alkaline mixture and Hypoglycaemic (0.3%)were the serialized category of drugs prescribed in the Kathmandu Medical College Health Center, Duwakot.

All together 55 drugs were distributed to the different patient of different age group ranging from 0-80 years, to cure the different types of diseases. The detailed lists of drugs, which are commonly prescribed, are shown in the table no 5a, 5b and 5c.

Table 5a: Distribution of drugs in the prescriptions collected from health center.

Category of drugs	Age Group								Total
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	
1. Paracetamol	22	42	35	9	2	6	4	2	122
2. Amoxicillin	6	9	6	1	1	1	1	1	26
3. Cetirizine	-	8	12	2	2	1	-	2	27
4. Albendazole	5	4	2	1	-	-	-	1	13
5. Vitamin B	1	2	1	2	-	3	-	3	12
6. Iron/folic	1	-	-	-	-	-	-	4	5
7. Metron DF	4	4	1		1	-	1	1	12
8. Ranitidine	-	3	3	1	-	-	2	-	9
9. Cough syrup	1	1	1	4	-	-	-	-	7
10. Actifed/coldin	1	1	-	-	-	-	-	-	2
11. Cyclopam	1	-	-	-	-	-	-	-	1
12. Calamine lotion	-	2	5	-	-	-	-	-	7
13. Rhinex	-	4	4	1	-	-	-	-	9
14. Buscopam/brufen	4	2	5	5	-	1	-	-	17
15. Eye drop	-	3	1	-	-	-	-	-	4
16. Cipro/chloramphenical									
17. Indomethacine	-	-	-	1	-	2	-	-	3

Source: KMC Duwakot Health Center porforma

Table 5b: Distribution of drugs in the prescriptions collected from health center.

Category of drugs	Age Group								Total
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	
18. Cloxacillin	-	1	7	1	-	1	-	-	9
19. Neomycin ointment	-		21	-	-	-	-	-	1
20. Clotrimazole	-	2	2	-	1	-	-	1	6
21. Tinidazole	1	1	-	1	-	-	1	-	4
22. Ciprofloxacin	-	3	5	2	-	-	1	1	12
23. Famocid	-	-	-	-	-	2	-	-	2
24. Zytee	-	1	-	-	-	-	-	-	1
25. Periclox	-	1	-	-	-	-	-	-	1
26. Persolgel	-	1	-	-	-	-	-	-	1
27. Ampicillin	1	-	-	-	-	1	-	-	2
28. Alprazolam	-	1	-	-	-	1	-	-	2
29. Norflox	-	1	4	-	-	-	-	-	5
30. Vasadil	-	-	1	-	-	-	-	-	1
31. Gelusil/ulgel	-	1	2	-	-	-	1	-	4
32. Stemetil	-	-	-	1	-	-	-	-	1
33. Acyclover tab	-	1	-	-	-	-	-	-	1
34. Acyclover ointment	-	1	-	-	-	-	-	-	1
35. Panofalm	-	1	-	-	-	-	-	-	1
36. Acyclovir cream	-	1	-	-	-	-	-	-	1

Source: KMC Duwakot Health Center porforma

Table 5c: Distribution of drugs in the prescriptions collected from health center.

Category of drugs	Age Group								Total
	0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	
37. Atenolol	-	-	-	2	-	1	-	-	3
38. Amlodipine	-	-	-	1	-	-	-	-	1
39. Normagel	-	-	1	-	-	-	-	-	1
40. Nemox	-	-	1	-	-	-	-	-	1
41. Neosporin	-	-	1	-	-	-	-	-	1
42. Salbutamol	3	1	-	-	-	-	-	-	4
43. Grilinctus	1	-	-	-	-	-	-	-	1
44. ORS	2	3	2	-	-	-	-	-	7
45. Alkaline diuretic mixture	1	-	-	-	-	-	-	-	1
46. Insulin injection	-	-	-	-	-	1	-	-	1
47. Sulfacetamide 0.2%	-	-	-	-	-	-	1	-	1
48. Diclofenac sodium	-	6	3	1	-	-	1	-	15
49. Fluconazole ointment	-	3	-	-	-	3	-	-	3
50. Antacid	-	3	1	2	-	-	-	-	6
51. Ofloxacin	-	1	-	-	-	-	-	-	1
52. Erthromycin	-	-	1	-	-	-	-	-	1
53. Doxycyclin	-	-	-	1	-	-	-	-	1
54. Flexon	-	-	-	1	1	-	-	-	2
55. Omeprazole	-	-	1	-	-	-	-	-	1
Total drug distributed to different age group ranging from 0-80 years (Table No. 5a+5b+5c)									384

Source: KMC Duwakot Health Center porforma

Table 6: Number of patients send for investigation

Investigation	No. Of patients	
	No.	%
Stool R/E	10	37.04
X-Ray	6	22.22
USG	4	14.81
Endoscopy	2	7.41
Blood and urine	5	18.52
Total	27	100

Source: KMC Duwakot Health Center porforma

After history taking and clinical examination, suspected cases, i.e. 27 (9.25%) cases, were send for investigation. Out of these suspected cases, (i.e. 27), 37.04% are sent for stool routine, 22.22% are sent for different X-ray, 14.18% are for ultra sonogram, 7.41% are sent for endoscopy and 18.52 % are sent for investigation of blood and urine.

Out of 292 patients 2 (0.68%) are referred to Kathmandu Medical Colllege Teaching Hospital at Sinamangal.

Conclusion

A prescription provides an insight into a prescriber's attitude to the disease being treated and the nature of health care delivery system in the community³ Appropriate drug should be taken in right doses in correct time for treatment of particular disease. Irrational use of drug just for the sake of taking should be discouraged.

The mean number of drugs per prescription should be as low as possible since higher figures increase the risk of drug interaction, risk of bacterial resistance, non-compliance and cost.

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