Original article

Patterns of prescription in Jimma Hospital

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Abstract: A total of 2170 prescriptions were recorded over a period of one year using structured questionnaire to systematically study drug-prescription patterns in Jimma Hospital. The prescription patterns demonstrated 94.8% for essential drugs and 75.2% for generic prescribing. The average number of drugs per prescription was 1.59 and the cost per prescription indicated 3.28 Birr. The proportion of prescriptions with antimicrobial combination accounted for 2.72%. The most frequently prescribed agents were antimicrobials 33.1%. The proportion of prescriptions with injection was 20.2%. Of the major diseases, Respiratory Tract Infections accounted for 13.6% of the prescriptions. The findings indicated that there were good signs of rational drug prescribing as noted by low average number of drugs per prescription and high proportion of generic prescribing that matched with prevalent disease patterns, although, there seemed to be problems with antimicrobial combinations and high frequency of injections. [*Ethiop. J. Health Dev.* 1997;11(3):263-267]

Introduction

Drugs are one of the major components of the health care system and play important role in saving lives when rationally used. There is no enough information on the patterns of drug use in different parts of the world including Ethiopia.

The limited data on prescription patterns and drug use indicate that, drug utilization in both developed and developing countries is generally not rational (6). The major problems on prescription practices are excessive prescribing, inadequate prescribing and incorrect prescribing. There is considerable evidence that antibiotic prescribing is excessive and inappropriate even in developed countries. In developing countries, there is inappropriate use of antibiotics and other drugs. Antibiotics account for the largest single group of drugs purchased though their consumption varies widely among countries. The volume of use of other drugs also far exceeds the prevalence of the diseases supposed to be treated with (1). The consequences of this include, subjecting patients to unnecessary adverse effects, reproduction of drug-resistant microorganisms

It was also shown (2) that there is over use and misuse of ineffective or obsolete products, creating unnecessary risk to the patients and additional cost for both individuals and the health care system. The reasons for such practices are multiple and include inadequate training, inadequate information on the drugs, the promotional activities of drug companies, pressure form patients and a false perception of "a pill for every illness" (4).

The greatest irrationality in drug use is using when they are not needed. Many clinical symptoms are caused by self-limiting sicknesses may not require treatment. However, many patients are given prescription from which they don't benefit. Even when drug is required, some patients expect more than one drug on each prescription. In countries where drug shortage occurs or distribution is uneven, this may mean that while one patient gets too many drugs others in need are deprived of it (4).

The rational use of drugs depends on the knowledge and attitude of the public. Raising public awareness by educating them about the basic concepts that users of medicines need to understand

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and waste of limited resources particularly in developing countries.

may minimize self medication. The use of generic drugs, when encouraged among the population is also a means of rationalising drug use and decreasing family expenditure.

Today there is an increased trend in drug consumption all over the world, but this does not mean that people are in better health. The increased consumptions could be due to patterns of prescribing and the attraction that drugs exert (5). One of the objectives of the national drug policy of Ethiopia is to limit the proliferation of unnecessary products by using the developed national drug list (6).

The objective of this study was to determine the patterns of prescription in Jimma Hospital through inventory of records over a period of one year.

Methods

Drug prescription patterns were assessed in Jimma Hospital during the period December 1990 to November 1991. A total of 2170 prescriptions which included both paying and free patients were recorded over a year with emphasis on patient identification number, cost of drugs on a prescription, the extent of generic prescribing and diagnosis from patient's records.

Prescriptions written by physicians for only one diagnosis at the Out Patient Department of Jimma Hospital which includes Medical, Surgical, Paediatrics, Gyn., Ophthalmology and Dental units were abstracted during the study period to avoid the ambiguity that may be caused by multiple diagnosis. Except for new cases, prescriptions for anti-TB drugs were excluded to avoid the influence of repeat patients prescriptions during the analysis. Data was collected for one week during each month of the year and data processing and analysis were done using EPI-INFO & SPSS computer programs.

The average number of drugs per prescription, average cost of drugs per prescription, percentage of prescriptions with antimicrobial combination, percentage of drugs prescribed by generic names, percentage of drugs prescribed out of Essential Drug List for Ethiopia and percentage of prescriptions with

injections were indicators used for analysis and calculated over a period of 12 weeks.

Definitions

1. Antimicrobials in this particular study include: All antibiotics and other antibacterials, antiviral, systemic antifungals and antimalarials prescribed.
2. Essential drug List: list of those drugs that satisfy the health care needs of the largest segment of a given population and should be available in adequate quantity and proper dosage form all the times.
3. Polypharmacy: a trend of prescribing three or more drugs on a prescription paper.

Results

Two thousand one hundred and seventy patient records were collected with the diagnosis of which prescriptions were written in Jimma Hospital. The records revealed that Respiratory Tract Infections (305 or 16.3%), Helminthiasis (258 or 13.8%) followed by Skin Problems including accidental injury and soft tissue laceration (256 or 13.7%) were the major causes of morbidity (Table 1).

Table 1: **Major diseases for which patients visited Jimma Hospital during the study period (Dec. 1990 to Nov. 1991) (Total Number of prescriptions =2,170)**

S. No	Type of Disease	Frequency	Percent
1	Respiratory Tract Infections	305	16.3
2	Helminthiasis	258	13.8
3	Skin problems (including soft tissue laceration and accidental wound)	256	13.7
4	Gastroenteritis including diarrhoea	132	7.0
5	Urinary Tract Infections	131	7.0
6	C.N.S problems	102	5.4

7	Gastritis and PUD	95	5.1
8	ENT problems	73	3.9
9	Sexually Transmitted Diseases	72	3.8
10	Acute Febrile Illnesses	63	3.4
11	Maternal problems	62	3.3
12	Rheumatoid Arthritis	60	3.2
13	Bronchial Asthma	57	3.0
14	Pelvic Inflammatory Diseases	48	2.6
15	Tuberculosis (only new cases)	31	1.7
16	Malaria	29	1.5
17	Cardiovascular Diseases	28	1.5
18	Dental problems	27	1.4
19	Anemia	24	1.3
20	Haemorrhoids	20	1.1
	Total	1873	100.0

Further analysis of the patients record indicated that antimicrobials, 1141(33.1%), analgesics, 706(20.5%) vitamins and minerals, 301(8.7%) anthelimintics 287(8.3%), followed by respiratory system drugs, 217(6.3%), were the most frequently prescribed drugs (Table 2)

Table 2: **Prescribed Drug characteristics by Pharmacological classification, Jimma Hospital, December 1990-November 1991. (Total Number of drugs = 3445)**

S.No.	Pharmacological Classification	Frequency	Percent
1	Antimicrobials	1141	33.1
2	Analgesics	706	20.5
3	Vitamins nd Minerals	301	8.7
4	Anthelmintic and Antifilarials	287	8.3
5	espiratory system Drugs	217	6.3
6	Antiprotozoals	175	5.1
7	Antacids and PUD Drugs	148	4.3
8	Topical Antifungal and Other Topicals	121	3.5
9	C.N.S Drugs	112	3.3
10	Oral Rehydration Therapy	59	1.7
11	Cardiovascular System Drugs	41	1.2
12	Steroids and Hormonal preparations Including contraceptives	36	1.0
13	Antihistamines	35	1.0
14	Drugs for Bronchial Asthma	24	0.7
15	Antihaemorroidals	21	0.6
16	Cathartic/Laxatives	16	0.5
17	Hypoglycaemic agents	5	0.15
	Total	3445	100.00

A total of 3445 drugs were prescribed on 2170 prescriptions. Of these 1178(54.3%) prescriptions contained one drug, 797(36.7) contained two drugs, 172(7.9%) contained three drugs and only 19(0.9%) of them contained four drugs (Table 3). This gave, on average, 1.59 drugs per prescription with 3,266(94.8%) of the drugs from the Essential Drug List for Ethiopia.

Table 3: **Number of Drugs per prescription, Jimma Hospital, December 1990-November 1991**

S. No.	Number of Drugs Per-prescription	Frequency	Percent
1	1	1178	54.3
2	2	797	36.7
3	3	172	7.9
4	4	19	0.9

5	5	4	0.2
	Total	2,170	100.00

Analysis of the data revealed that 2590(75.2%) of the drugs were prescribed by generic names (Table 4)

Table 4: **Generic versus Brand Prescribing Jimma Hospital December 1990-November 1991**

S. No	Type of prescribing	Frequency	Percent
1	Generic prescribing	2,590	75.2
2	Brand prescribing	773	22.4
3	Prescribing not specific	82	2.4
	Total	3,445	100.00

A number of antimicrobial agents were prescribed for treating infectious diseases of which ampicillin, 379(33.2%), was the leading, followed by procaine penicillin, 291(25.5%). Of the analgesics, paracetamol 266(37.7%), was most frequently prescribed followed by aspirin, 116(16.4%), and dipyrone, 90(12.7%). Among the anthelminthic drugs, mebendazole 133(46.3%), piperazine, 49(17.1%), and pyrantel pamoate, 35(12.2%), were highly prescribed.

From the antimicrobials prescribed, some were prescribed in combination. Ampicillin with chloramphenicol capsules 17(28.8%) and procaine penicillin with Chloramphenicol Capsules 14(23.7%) were the leading antimicrobial combinations (Table 5).

Table 5: **Antimicrobial combinations, Jimma Hospital, December 1990-November 1991**

S. No.	Antimicrobial combined	Frequency	Percent
1	Ampicillin caps, and chloramphenicol caps	17	28.8
2	Procaine pen fort. and Chloramphenicol	14	23.7
3	Procaine pen. fort. and Tetracyclines	6	10.2
4	Procaine pen. fort and Ampicllin caps	4	6.8
5	Ampicillin caps and Tetracyclines caps	4	6.8
6	Ampicillin inj. and Ampicillin capsule	2	3.4
7	Others	12	20.3
	Total	59	100.00

Discussion

The drug pattern indicated that infectious, malnutrition and parasitic diseases were the major health problems of the patients visiting the hospital (Table 2) and this was in agreement with the overall heath problems of the country.

Almost all drugs prescribed for the health problems in the hospital were in the Essential Drug List for the country. Few drugs prescribed out of the list were those that were in the National Drug List of Ethiopia.

Among the analgesics, the frequent prescribing of paracetamol, 266(37.7%), was a practice to be encouraged due to the fact that it is cheap and a relatively safer analgesic at therapeutic dose. However, considering its reported (7) adverse effects of agranulocytosis and anaphylactic shock, the 90(12.7%) prescriptions for dipyrone needs attention. The high prescribing rate of Mebendazole 133(46.3%) as anthelminthic agent was encouraging practice because it is cheap broad spectrum anthelminthic agent which is useful for mixed worm infections.

The other encouraging practice was that Tetraycline was not prescribed for children below the age of 7 and polypharmacy was also not frequent in that the number of prescriptions calling for more than two drugs were only 205 or 9% (Table 3). Analysis of the drugs prescribed gave an average of

1.59 drugs per-rescription. This was encouraging compared to the values reported from similar studies conducted in some African countries like Kenya, Cameroon and Tunisia, where the minimum number of drugs per prescription were 3, 5 and 3 respectively (8).

The world-wide overuse and misuse of antimicrobial agents is of concern (1). There is also frequent use of antimicrobial combinations. The present study also revealed the situation in that there was frequent use of antimicrobial combinations all of which could not be justified. Such prescribing practice and frequent use of injections in the hospital calls for attention and systematic review.

The present study on prescription patterns in Jimma Hospital has given the opportunity to know about the presenting diseases and prescription patterns in the hospital.

The prescribing pattern of most of the drugs, number of drugs per-prescription and the extent of generic prescribing demonstrated favourable indications of rational prescribing.

The initiation of implementation of the Essential Drugs List at all levels in the country and the status of the hospital (referral teaching hospital) may have contributed to the favourable situation in Jimma Hospital.

Though this study revealed that there were good indications of rational prescribing in Jimma Hospital, one cannot conclude about the real situation of drug use in Jimma, because the hospital was referral-teaching hospital and data collected includes only records of ambulatory patients with single diagnosis. For the latter, a comprehensive practice survey that involves all patients records should be carried out.

In Ethiopia, like in many other developing countries, infectious diseases, malnutrition and helminthiasis are the major health problems. The findings of the present study revealed the same. The prescription patterns also matched the disease patterns in the hospital. However, the frequent use of antimicrobial combinations and injections has to be critically looked into and corrected unless indicated otherwise.

To correct this prescribing practice on antimicrobial combinations and injections, provision of refresher course on rational drug use and intensification of information, education and communication on the National Drug Policy are recommended. To further improve the positive prescribing behaviours, in corporation of the concept of rational drug use and cost awareness in the curricula of health workers might be necessary.

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