

Original Article

Evaluation of Drug Use Patterns of Out Patient Attend es in a Tertiary Care Teaching Hospital in Dermatology and Venereology Department e as a Tool to Promote Rational Prescribing

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ABSTRACT

Background: Drug utilization studies are pre requisite for the formulation of drug policies. They offer useful methods for teaching and training in drug therapy and also identify the problems that arise from drug usage in healthcare delivery system and highlight the current approaches to the rational use of medicines. **Objectives:** The main objective of the prescription audit or evaluation was to measures for improving the prescription practices and to generate information on the core prescribing indicators proposed by the World Health Organization (WHO). **Methods:** This was a descriptive type of cross sectional study. The study was conducted in the Out Patient Department (OPD) of Dermatology & Venereology in a tertiary care private hospital, Dhaka, Bangladesh in between January and March'2012. A total of 300 prescriptions were obtained with the help of a pre-inserted carbon paper in a special format using WHO core prescribing indicators. **Results:** The average number of drugs per encounter was 3.8 and no single drug was prescribed by generic name. Use of antibiotic (56% of encounters) was frequent, but injection use (2.67% of encounters) was within the recommendation of WHO. The use of fixed drug combinations (FDCs) was 15.28% of prescribed drugs. Only 22.08% drugs were prescribed from national essential medicine list. **Conclusion:** The findings from the current study showed a trend towards inappropriate prescribing.

Introduction

The evaluation and assessment of health care quality in receiving worldwide attention¹ and drugs play an important role in the health care delivery system, giving it credibility².

The information on quality of health care is being demanded by policy makers, healthcare professionals and the general public³. Standards setting and assessment of the quality care through performance review should be part of everyday practice⁴.

Prescription order is an important transaction between the clinician and the patient. It is an

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order for a scientific medication for a person at a particular time⁵.

The conference of experts on the rational use of drugs, convened by the World Health Organization (WHO) in Nairobi (Kenya) in 1985 defined that “Rational use of drugs requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time and at the lowest cost to them and their community”⁶.

World Health Organization goal is to help save lives and improve health by ensuring the quality, efficacy, safety and rational use of medicines, including traditional medicine and by promoting equitable and sustainable access to essential medicines, particularly for the poor and disadvantaged⁷.

Ensuring appropriate prescribing is a major challenge for the health services. Variation in the volume and cost of prescribing in different parts of the country, between practices and between individual doctors, has been a concern to many clinicians and policy makers⁸.

Appropriate drug utilization has a huge contribution to global reduction in morbidity and mortality with its consequent medical, social and economic benefits⁹.

Keeping all these facts in consideration, the current study has been undertaken to help the clinicians to take measure for the improvement of prescribing behaviour and to prevent prescribing errors and thus promote rational use of medicines.

Methods

The descriptive type of cross sectional study was conducted in East-West Medical College Hospital (EWMCH), Dhaka. The study was carried out over a 3 months period from January’ 2012 to March’2012. The patients and their prescriptions were used as source of data. A total of 300 patients were included in the study. New patients attending the Out Patient Department of Dermatology & Venereology which is located in the ground floor of East-

West Medical College Hospital during the study period were considered for analysis. Follow up visits during the study period were included and were counted as separate visits. Patients visiting the emergency department or who got admitted during OPD visit were not included in the study.

To assess the scope for improvement in rational drug use in outpatient practice, the World Health Organization (WHO) in 1993 has formulated a set of “Core drug use indicators” namely prescribing indicators, patient care indicators and facility indicators. Among them, for this study only “prescribing indicators” were taken which measure the performance of prescribers. The values of the core prescribing indicators were calculated as follows:

1. Average number of drugs per encounter = (total number of drugs prescribed) ÷ (total number of encounters surveyed).

2. Percentage of drugs prescribed by generic name = (number of drugs prescribed by generic name) ÷ (total number of drugs prescribed) X 100.

3. Percentage of encounters with an antibiotic prescribed = (number of patient encounters during which an antibiotic was prescribed) ÷ (total number of encounters surveyed) X 100.

4. Percentage of encounters with an injection prescribed = (number of patient encounters during which an injection was prescribed) ÷ (total number of encounters surveyed) X 100.

5. Percentage of drugs prescribed from essential drug list = (number of drugs prescribed from essential drug list) ÷ (total number of prescribed drugs) X 100.

The data was expressed as percentage, mean and total numbers.

Results

There were 300 prescriptions were collected from the Dermatology & Venereology OPD of East-West Medical College Hospital, Dhaka. From those prescriptions, it was found that most commonly prescribed groups of drugs were

corticosteroids (17.49%), H₁ antihistamines (12.72%) and antifungals (8.04%) (Table - I).

Table I: Most commonly prescribed groups of drugs

Groups of drugs	Number (% of total) N = 1132
Corticosteroids	198(17.49)
H ₁ antihistamines	144(12.72)
Antifungals	91(8.04)
Macrolides	85(7.51)
Anti-scabies	29(2.56)

Table II: Most commonly prescribed antimicrobial agents

Antimicrobial agents	Number of prescriptions (%)
Azithromycin	68(22.67)
Ketoconazole	65(21.67)
Doxycycline	24(8.00)
Erythromycin	17(5.67)
Cephadrine	15(5.00)

Table III: Most common diagnosis among outpatients

Diagnosis	Number of cases (% of total patients) N = 300
Dermatitis	59(19.67)
Acne	42(14)
Scabies	28(9.33)
Urticaria	20(6.67)
Erythroderma	17(5.67)

About 33% of the prescriptions contained at least one antimicrobial agent. Most commonly prescribed antimicrobial agents were azithromycin (22.67%), ketoconazole (21.67%) and doxycycline (8%) (Table -II). About 77% of the prescriptions, diagnosis was mentioned. Most common diagnosis were dermatitis (19.67%), acne (14%) and scabies (9.33%) (Table - III).The most commonly used route of drug administration was topical (about 50%) (Table - IV).

The use of fixed drug combinations (FDCs) was 15.28% of prescribed drugs. Most commonly used irrational FDCs were B₁+B₆+B₁₂ (7%),

clindamycin + tretinoin (6.67%) and clobetasol proprionate + salicylic acid (5%) (Table - V).

Table IV: The routes of administration of drugs prescribed among hospital outpatients

Routes of drug administration	Total drugs (%)
Topical	565 (49.91)
Oral	559 (49.38)
Injection	08 (0.71)

Table V: Most commonly prescribed irrational Fixed Drug Combinations (FDCs)

FDCs	Number of prescriptions (%)
B ₁ + B ₆ + B ₁₂	21(07)
Clindamycin + Tretinoin	20(6.67)
Clobetasol proprionate + Salicylic acid	15(05)
Ferrous SO ₄ + Folic acid + ZnSO ₄	12(04)
Hydrocortisone + Fusidic acid	09(03)

Table VI: Number of drugs prescribed per prescription

Prescription containing number of drugs	Number of prescriptions (%)	N (%)
One	02 (0.67)	
Two	30 (10)	32 (10.67)
Three	96 (32)	
Four	97 (32.33)	
Five	60 (20)	
Six	14 (4.67)	268 (89.33)
Seven	01 (0.33)	
Total	300 (100)	

Table VII: Drugs prescribed from national Essential Drug List (EDL)

Drugs	Total number of drugs (%) N= 1132
Included within EDL	250 (22.08)
Excluded from EDL	882 (77.92)

A total of 1132 individual drugs were prescribed for 300 drug encounters, giving an average of 3.8. The range of drugs per encounter varied from 1-7. There was not a single prescription wherein no drug was prescribed. As shown in Table VI, four (4) drugs were prescribed in 97 prescriptions (32.33%) was found to be highest among 300 prescriptions. About 10.67% (32) patients were prescribed up to 2 drugs and the rest 89.33% (268) patients were prescribed from 3 to 7 drugs.

No single drug was found to be prescribed by generic names.

In the present study, the percentage of encounters with an antibiotic and an injection prescribed were 56% and 2.67% respectively.

Only 22.08% drugs were prescribed from national essential medicine list (Table - VII). Among them, hydrocortisone (13%), permethrin (9.67%) and doxycycline (8%) were most commonly prescribed (Table - VIII).

Table VIII: Five most commonly prescribed drugs which were included within or excluded from the national EDL

Drugs	Number of prescriptions (%) N = 300
Included within EDL	
Hydrocortisone	39 (13)
Permethrin	29 (9.67)
Doxycycline	24 (8.00)
Salicylic acid	22(7.33)
Chlorpheniramine maleate	18(6.00)
Excluded from EDL	
Clobetasol propionate	96(32)
Azithromycin	68(22.67)
Ketoconazole	65(21.67)
Desloratadine	40(13)
Loratadine	37(12.33)

Table IX: The overall findings for the WHO core prescribing indicators

WHO core prescribing indicators	Findings
Average number of drugs per prescription	3.8
Percentage of drugs	00

prescribed by generic name	
Percentage of encounters with an antibiotic prescribed	56
Percentage of encounters with an injection prescribed	2.67
Percentage of drugs prescribed from national essential drug list	22.08

Discussion

A prescription by a doctor may be taken as a reflection of physicians' attitude to the disease and role of drug in its treatment. It also provides an insight into the nature of the health care delivery system.

With regard to the average number of drugs per prescription, the value found in the present study was 3.8. In similar studies conducted, the lower values found were 1.65 in Zimbabwe,¹⁰ 2.7 in India¹¹ and 2.91 in Nepal.¹² It also showed that more than 3/4th of the patients (76.33%) were given three or more drugs. Since, WHO has recommended that average number of drugs per prescription should be 2.0,¹³ so the results of the study reflect polypharmacy which may lead to adverse drug reactions, increase the risk of drug interactions, dispensing errors, medication errors, decrease adherence to drug regimens and unnecessary drug expenses.

Use of generic names in prescription eliminate the chance of duplication of drug products and also reduce the cost of the patient.¹⁴ The percentage of drugs prescribed by generic name was 0% in the study which is very much less than that reported in studies conducted in Cambodia (99.8%),¹⁵ India (73.4%)¹⁶ and Nepal (21.3%).¹⁷ The most common reasons for not prescribing generic name in Bangladesh may be tradition, low production of generic drugs in Bangladesh and currently, most of the pharmaceutical companies divertive drug promotion technique.

In the present study, the percentage of encounters with an antibiotic prescription was

56% which is nearly comparable with the results of Norway (48%).¹³ In similar studies conducted, the antibiotic prescription is remarkably less than that reported in Iran (61.9%)¹⁸ and high than that reported in Nepal (28.3%)¹⁹. According to WHO, 15-25% of antibiotics encountered is expectable in the countries where an infectious disease is more prevalent.^{20,21} In a 3rd world developing country like Bangladesh, prevalence of infectious diseases is higher than the developed countries. That is why; in this study the antibiotic utilization rate was higher than that of developed countries. However, this result does not indicate that the prescription pattern was better than in other countries.

The WHO recommended target for injection exposure is 10% or less.²⁰ In this study, the percentage of prescriptions with an injection encountered was 0%. So the observed proportion of injectable drugs prescribed is considered acceptable according to WHO recommendations. Minimum use of injections is preferred and this reduces the risk of infection through parenteral route and cost incurred in therapy.¹⁹

In this study, the percentage of drugs prescribed from national EDL of Bangladesh was 22.08%. The possible reason for this lower value could be the prescribers lacking the understanding the importance of essential drug concept. The low rate of prescribing from EDL of Bangladesh may be also contributed by excessive use of steroid preparations (clobetasol propionate), newer H₁ antihistamines (desloratadine), newer antibiotics (azithromycin) and FDCs (clindamycin + tretinoin) which are not enlisted in EDL of Bangladesh. So that the higher percentage of non-essential medicines prescription, polypharmacy, random use of proprietary name of drugs, excessive use of antibiotics in this study is responsible for inappropriate prescribing pattern.

Conclusion

Irrational prescribing is one habit which is difficult to cure. There is some evidence that interventions such as short problem-based training courses in pharmacotherapy and rational

use-focused workshops can improve prescription behaviour and skills.^{22,23} There is an urgent need to implement training initiatives, with a support from public sources to ensure that there is no conflict of interest, to improve the prescription behaviour of practitioners in Bangladesh and ensure that patients receive evidence-based, cost-effective treatments for their health problems.

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