Original article

Evaluation of Rational Prescribing Patterns Of A Government Teaching Hospital And A Private Teaching Hospital By Undergraduate Medical Students In Dhaka, Bangladesh.

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Abstract

Objective: Irrational prescribing is a major drawback in healthcare delivery in Bangladesh. The prescribing pattern of doctors in two of the tertiary care referral centers was evaluated to identify the correctness of pattern, components and adherence to the WHO core prescribing indicators.

Materials & Methods: A total of 120 prescriptions 0f Holy Family Red Crescent Medical College& Hospital (HFRCMCH) and 120 prescriptions of Dhaka Medical College & Hospital (DMCH) were collected at random in the outpatient department within a period of one month. These were then analyzed by WHO/ INRUD indicators.

Results: There were average 3.38 drugs per prescriptions in HFRCMC and 3.65 drugs in DMCH. No drugs were prescribed in generic name in both medical college hospitals. About 13.6% drugs were prescribed from the essential drug list in HFRCMCH and 25.83% in DMCH. Eighty four percent of the prescriptions were complete in respect to patient medical information in both hospitals. Antibiotics were prescribed at 33% in HFRCMCH and 24.38% at DMCH. Injections were prescribed only in 0.29% at HFRCMCH 24.38% at DMCH.

Conclusion: The prescribing pattern of doctors at the tertiary care referral centre was evaluated for rational drug therapy. The medical students participate in the exercise enthusiastically and perhaps understood the issues related to rational prescribing effectively. These results should be used to create awareness among the future doctors in generating rational prescriptions.

Keywords: Medical Students, Rational Prescribing.

Introduction

Prescription writing is an art as it reflects the instructions given by prescriber to the patient. Irrational prescription of drug use is a common occurrence in clinical practice. The cost of such irrational drug use is enormous in terms of both scarce resources and the adverse clinical consequences of therapies that may have real risks but no objective benefits. This is especially true in case of developing countries such as India, Bangladesh with a huge population that makes access to health care delivery systems difficult[1]. Improper prescribing habits leads to an in effective and un safe treatment, exacerbation or prolongation of illness, distress and harm to the patient and higher costs. They also make prescriber vulnerable to influences which can cause irrational drug prescribing. Important reasons of irrational drug prescription are lack of knowledge about drugs, unethical drug promotions and irrational prescribing habits of clinicians[2]. How to investigate drug use in health facilities, following the collaborative work of international network for the rational use of drugs (INRUD) and the WHO essential drugs and medicines policy department(WHO-EDM) provided useful tools for objective and reproducible measures of the effectiveness and efficiency of drug use[3]. Monitoring of prescriptions and drug utilization studies can identify the problems and provide feedback to prescribers so as to create awareness about irrational use of drugs[4]. Variations in types of drugs used and in the way they are used is considerable even when comparing small adjacent areas and in comparing physician working within same area[5]. Drug Utilization Reviews are useful for obtaining information about drug usage patterns and for identifying high cost drugs, which are of economic

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interest[6]. Data about drug usage patterns is not satisfactory. There is lack of data on prescription pattern studies. It is essential to define prescribing pattern and to identify the irrational prescribing habits to send are medial message to the prescribers. There is need for mass awareness among the physicians and consumers about the concept of essential medicines, banned drugs, advantages of generic drug prescription and use of rational drug combination. Rational drugs policy or an essential drugs list will be useless unless accompanied by intensive efforts to improve the education and updating of doctors and pharmacists and to reduce the commercial pressures on doctors to prescribe unnecessary drugs. Keeping these facts in consideration the present study was planned to assess the prescription pattern in the OPD of Dhaka Medical College and Hospital and Holy Family Red Crescent Medical College and Hospital, Dhaka, Bangladesh. The current study was an attempt to teach the 4th year medical students about the skills to audit prescription from their teaching hospital. So much so that could they compare it with Govt, teaching hospital like DMCH. To attain this skill "an exercise or prescription audit"was introduced as a teaching and learning strategy for the 4th year MBBS students of Holy Family Red Crescent Medical College and Hospital where they collected, analyzed and audited prescriptions from their own teaching hospital and also from Dhaka Medical College and Hospital on the basis of INRUD indicators[7]. International Network of Rational Use of Drugs (INRUD) has developed a list of indicators of rational prescribing.

Materials and Methods

The 4th Year medical students of HFRCMCH were divided in to 6 groups, each group consist of 20 students. Total 120 prescriptions of the registered physicians and specialists of different sectors of OPD of HFRCMCH are collected at random within a period of one month.Next month total 120 prescriptions of the registered physicians and specialists of different sectors of OPD of DMCH are collected at random within a period of one month. No attempt has been made to categorize the prescription according to patient age, sex or disease profile. Each group of students have taken 4 hours to analyze and audit using INRUD indicators. They are also provided with essential drug list and BDNF. Then in the next practical class students compiled the individual group results into a combined one and audited the prescription using INRUD indicators.

Following parameters were analyzed.

World Health Organization's Core Drug Use Indicators to Investigate Drugs use in Health Facilities.

Prescribing indicators

1. Average number of drugs per encounter
2. Percentage of drugs prescribed by generic name
3. Percentage of encounters with an antibiotic prescribed
4. Percentage of encounters with an injection prescribed
5. Percentage of drugs prescribed from essential drug list
6. Whether prescription is complete with respect to-

a) Format

b) Doges and duration

c) Patient medication information

Results

After compiling the results, it was observed that there were 3.38 drugs per prescription in (Table-I) 3.65 drugs per prescription in (Table II). No drugs were prescribed in generic name. both in Table-I and Table-II. Seventy one percent of prescriptions were complete with regards to standard prescription format in Table-I and 47.75% of prescriptions were complete in regard standard prescription format in Table–II. Only 13.6% drugs were prescribed from the essential drug list in Table-I but 25.83% drugs were prescribed from the essential drug list in Table– II. Both in Table-I and Table–II, 84% of prescriptions were complete in respect to patient medical

Table I :

Results of Prescription audit in private teaching Hospital (HFRCMCH) n= 120	
	Number
Number of Prescriptions	120
Average number of drug per prescription	3.38%
Percentage of drugs prescribed by generic name	0%
Percentage of prescription with antibiotic prescribed	33%
Percentage of drugs prescribed from essential drug list	13.6%
Percentage of prescription with injection prescribed	0.29%
Whether prescription is complete with respect to a) Format b) dosage & duration c) patient medication information	 71% 100% 84.16%

Table II:

Results of Prescription audit in Govt. teaching Hospital (DMCH) n= 120	
Prescribing indicators	Number
Number of Prescriptions	120
Average number of drug per prescription	13.65%
Percentage of drugs prescribed by generic name	10%
Percentage of prescription with antibiotic prescribed	124.38%
Percentage of drugs prescribed from essential drug list	125.83%
Percentage of prescription with injection prescribed	12.73
Whether prescription is complete with respect to	
Format	47%
dosage & duration	95%
information	84%

information. Antibiotics were prescribed in 33% in Table- I and 24.38% in Table – II. Injections were prescribed only in 0.29% of the prescriptions in Table—I and in 2.73% of the prescription in Table– II.

Discussion

The WHO prescribing indicators have provided a reproducible and objective measure of Characterizing prescriptions by clinicians. This study reveals areas of irrational prescribing that needs to be addressed with intervention programmes. Whilst the WHO guidelines on rational use of drugs had reference values of (1.6-1.8) drugs per encounter[8], the average of 3.38 (table-I) and 3.6 (Table – II) drugs prescribed per patient encounter as seen in this study is comparatively high. No doubt, a high number of drugs prescribed to a patient increase the risk of drug interactions, affects compliance and suggests a tendency towards poly pharmacy with all its attendant ills. In this study, injection use was found to be 12.73% (Table-II). This is close to the WHO reference values of 10.1-17.0 as reported in a WHO sponsored field test in south Nigeria. It is much lower 0.29% that reported in table-I. It is conceivable that efforts by governments and professional associations on education on the dangers of high injection use in an era of many blood borne infections like HIV and hepatitis B may be paying off since these studies were all done much earlier, most of them in public sector.

The WHO expects a 100% prescription of drugs in generic name. However, none of drugs prescribed in both Table-I and Table-II in this study were done in generic name. This is very low. A much lower value of 4.4% were reported from Dubai in United Arab Emirates[9]. Increasing generic prescribing could substantially reduce the cost of drugs for the patients and reduce cost for pharmacies. This study also showed lower generic prescription both in public and private health facilities. Antibiotic resistance among pathogenic micro- organisms is a matter of worldwide concern. Antibiotics are among the most commonly prescribed drugs in hospitals and in developed countries. Around 30% of the hospitalized patients are treated with these drugs[10].

In the present study, antibiotics were prescribed in 33% (Table-I) and 24.38% (table-II). In a related study in a private hospital in Dubai, the finding of 21.4%.antibiotics prescription was much lower than this study. A study conducted in Jordan, the percentage of prescriptions involving antibiotics averaged 60.9%. In this study 13.6% in Table-I, 25.83% in Table-II, prescriptions were prescribed from essential drug list. However, all the clinicians admitted to having knowledge of the existence and usefulness of the essential drug list. About 100% prescriptions in Table-I and 95% prescriptions in Table-II were provided with proper instructions regarding drug dosing, formulation and duration, which was 70% in the study of Rahman Z et al[11].

In this study 84.16% prescriptions in Table-I and 84.17% prescriptions in Table-II contained proper instruction. Irrational prescribing is perhaps due to lack of knowledge of private practitioners on how to prescribe a drug and what information they should provide to their patieants[12].

Conclusion

This preliminary study could promote the physicians of today to imbibe and practice the principles of "rational drug therapy". It should be followed in the interest of patients health care and legal consequences of injudicious medication can also be avoided. The present exercise was an attempt to sensitize and to educate the 4th year under graduate medical student about skills

required to evaluate prescribing pattern and rational use of drugs. It will also help them become future policy makers in formulating and implementing programs aimed at improving prescription practices. However, the present study provides important useful baselines data, which will be useful for comparison when any drug utilization study would be carried out in future.

References

1. Ramsay LE. Bridging the gap between clinical pharmacology and rational drug prescribing. Br J Clin Pharmacol. 1993; 3S:575-576.
2. M de Vries, TPG, Henning RH, Hogerzeil HV, et al. (1994)'. Guide to Good prescribing. A practical guide WHO.
3. Pradhan SC, Shewade DG, Shashindren CH, et al. Drug utilization studies. Natl Med j Ind. 1988; 1: 185-189.
4. Molstad S, Hovehus B, Kroon L, et al. (A prescription of antibiotics to Out patients in hospital clinics, community health centre & private practice. Eur J Clin Pharmacol. 1990; 39:9¬12.
5. Marshner JP, Thurmann P, Harder S, et al. Drug utilisation review on a surgical intensive care unit. Int I Clin Pharmacol Ther. 1994; 32: 447-451.
6. S P Ravi, Partha P, Shenoy N. (2002) Prescribing patterns in medical outpatients. Int j Clin Pract. 56 (7): 549-551.
7. Anker M, Jokobowiez B, Fresle DA, Hozerzil HV. How to investigate drug use in health facilities; WHO / DAP/1993.
8. Hazra A, Tripathi SK, Alam MS. Prescribing and dispensing activities at the health facilities of a non-governmental organization. Natl Med / India 2000; 13 : 177-182.
9. Rishi RK, Sangeeta S, Surendra K, Tailang M. Prescription audit: experience in Garhwal (Uttaranchal), India. Trop Doct. 2003: 33: 76-79.
10. Van der Meer JW, Gyssens IC, Quality of antimicrobial drug prescription in hospital. Clin Microbiol Infect. 2001; 7:12-15.
11. Rahman Z, Nazneen R, Begum M. Evaluation of prescribing pattern of the private practitioners by the undergraduate medical students. Bangladesh J Pharmacol, 2009; 4:73-5.
12. De Vries TPGM, Henning RH, Hogerzeil HV, Fresle DA. Guide to good prescribing: A practical manual. WHO/ DAP/ 94, 11:1994.