ljm

Patterns Of Drug Prescribing In A Hospital In Dubai, United Arab Emirates

Sharif SI, Al-Shaqra M, Hajjar H, Shamout A and Wess L

Department of Pharmacology, College of Pharmacy. University of Sharjah, Sharjah, UAE

Abstract: To determine the pattern of drug prescription by consultants in a private hospital in Dubai, United Arab Emirates, 1190 prescriptions were collected from the hospital's pharmacy over 30 days. In total, 2659 drugs were prescribed. The mean number of drugs per encounter was 2.2. Only 4.4% of all drugs prescribed were generic. Polypharmacy was observed in only 7.5% of all encounters. Information about the prescribing physician and the patient was invariably deficient. Name of patient, age, and gender were absent in 2.9%, 9.7%, and 12% of prescriptions, respectively. In addition, none of the prescriptions mentioned address, diagnosis, or allergy of the patient. Name of physician, signature, speciality and license or registration number were omitted in 12.2%, 10.3%, 20.3%, and 54.9% of prescriptions. The most commonly prescribed therapeutic classes of drugs (and principal drug in each class) were as follows: 23.4% non-steroidal anti-inflammatory drugs (NSAIDs, Diclofenac sodium being 51.6%), 21.4% antibiotics (amoxicillin-clavulanate 13.5%), and 11.5% gastrointestinal drugs (GI, Hyoscine-N-butylbromide 28.1%). Other therapeutic classes included endocrine drugs (6.1%), vitamin supplements (5.9%), nasal decongestants (4%), antihistaminics (3.8%) and cardiovascular drugs (2.6%). Antibiotic injections accounted for 7.4% of all antibiotics prescribed, which was equivalent to 1.6% of all prescriptions. Other agents prescribed in small proportions of encounters collectively amounted to 21.3%. This study reveals the prescription trends, and indicates possible areas of improvement in prescription practice.

Key words: Patterns, prescribing, hospital, analysis

Introduction

In the United Arab Emirates (UAE), health care is provided to all residents of the country through primary health care centers. Patients gain access to secondary and tertiary care through referral from primary care centers. However, both insured and noninsured patients can seek medical services and consultation in private hospitals. Health regulation in UAE forbids the dispensing of incomplete prescriptions or prescription drugs without a prescription.

Rational drug prescribing has been the subject of several studies [1]. The World Health Organization (WHO) compiled a set of core drug use indicators that are useful for studying patterns of drug prescribing in health-care facilities [2, 3]. Prescriptions can be used as legal documents holding the prescribing physician and the dispensing pharmacist responsible for any misconduct in prescribing or dispensing [4]. Therefore, in accordance with UAE health regulations [5], an ideal prescription should carry all necessary information, such as name, age, sex, and address of patient, together with a brief diagnosis of the condition targeted by the drug treatment. In addition, particulars of the prescriber should include name, address, signature, means of contact, specialty, and medical license number. The present study analyzed the prescriptions issued in a private general hospital, covering all medical specialities, in Dubai, United Arab Emirates. The objective was to investigate the prescribing behaviour of consultant physicians and to identify areas in need of improvement in order to enhance communication between physicians and pharmacists and rationalize drug use, thereby minimizing medication errors and improving therapeutic outcomes.

Methods

A total of 1190 prescriptions were collected from a general private hospital in Dubai during 30 days of December, 2005. Patients attending the hospital were mostly residents of Dubai and nearby Emirates, namely Sharjah and Ajman. Collected prescriptions issued to out-patients were subjected to analysis of objective and subjective information. Indicators addressed included the patient's name, age, sex, and address, and the physician's name, address, signature, and license number. The percentage of prescriptions lacking this information was calculated. Handwritten prescriptions were also examined for legibility by four independent pharmacists. The number of drugs per prescription document (encounter), drugs prescribed by generic name, dosage, refills, duration of treatment and possible drug-drug interactions were also considered. Moreover, the most commonly prescribed therapeutic classes and the frequently prescribed drug of each common class were counted. We also counted prescriptions of injectable antibiotics.

Results

The mean number of drugs per prescription document was 2.2. The majority (95.2%) of prescriptions were handwritten, and less than half (44.7%) of them were written clearly enough to be read by all four examiners.

The name of the physician, signature, speciality, license or registration number and address were omitted in 12.2%, 10.3%, 20.3%, 54.9% and 100% of prescriptions, respectively (Table 1). Patient name, age, and gender were also absent in 2.9%, 9.7%, and 12% of prescriptions, respectively. In addition, none of the prescriptions mentioned the address, diagnosis, or allergy of the patient. Drugs were prescribed by generic name in only 4.4% of instances. In no instance were both generic and brand names indicated. The dose was specified for almost 50% of prescribed drugs and the route of administration for 29.7% (Table 2).

Nearly 37% of the documents specified only one drug, whereas 47% specified 2 or 3 drugs, and about 16%

specified 4 or more drugs. Polypharmacy (more than 4 drugs) was observed in only 7.5% of prescriptions (Table 3).

The most commonly prescribed therapeutic drug class was NSAIDs (23.4%), followed by antibiotics (21.4%), gastrointestinal drugs (11.5%), endocrine drugs (6.1%), vitamins (5.9%), nasal decongestants (4%), antihistaminics (3.8%) and cardiovascular drugs (2.6%).

These drug classes combined accounted for 78.7% of all drugs prescribed, and the rest (21.3%) for various agents each of which was prescribed infrequently. Injectable antibiotics were encountered in 1.6% of all prescriptions and accounted for 7.4% of all prescribed antibiotics.

The most frequently prescribed drug for each of the three most prescribed therapeutic classes were diclofenac sodium (51.6% of all NASAIDs), amoxicillin-clavulinic acid combination (13.5% of all antibiotics) and hyoscine-N-butyl bromide (28.1% of all GI drugs).

Discussion

Prescriptions written in hospitals require close monitoring and effective intervention when needed. This study aimed to identify deficiencies in prescribing and to investigate the prescribing behaviour of consultant physicians. The prescription is a legal document that can be used both for and against the physician and the pharmacist in cases attributed to prescribing or dispensing errors [4,6] In the present study, poor legibility was common in more than half of the prescriptions (55.3%) examined. This is less than but close to the situation in Saudi Arabia (64.3%) [7], and higher than that reported in the USA seven years ago (15%) [8]. Dispensing errors due to illegible prescriptions may be detrimental for the patient, with legal implications for both physician and pharmacist [4,5,9]. This problem is easily overcome by computerized order entry and e-prescribing technology. Drugs prescribed can be selected electronically from a drug database. This verifies prescriptions and ensures the consideration of all drug-related parameters, such as dose, route, and duration of treatment. Our results clearly demonstrate the need for considerable improvement in prescription practices because a substantial proportion of prescriptions lacked important information. Omitted information included physician name (absent in 12.2%), signature (in 10.3%), license number (54.9%), physician's address (100%), and speciality (20.3%). The patient's name was missing in 2.9% of instances, age in 9.7%, and sex in 12%. With regard to physicians, the address may have been omitted because prescriptions were issued in the name and address of the hospital. The address of the patient may be in the hospital records, but that does not help the pharmacist if he or she needs to immediately correct a dispensing error after the patient leaves the pharmacy. The patient's name is, of course, of great importance. Moreover, because names are sometimes not indicative of the sex, gender should also be included so the pharmacist can verify rational selection of drugs and dosage. A brief note about the diagnosis is also helpful to the pharmacist to ensure that the drugs prescribed are appropriate for the patient's condition. The very widespread use of NSAIDs can not be taken as

indicative of high incidence of orthopaedic or rheumatologic cases because of the wide range of therapeutic indications of this class of drugs.

The percentage of drugs prescribed by generic name was 4.4%. This is lower than reported for Sudan (19.5%) [10], Saudi Arabia (15.1%) [7], Lebanon (2.9%) [11], and Bangladesh (78%) [12]. The lower rate in Dubai may be attributed to the influence of local and international pharmaceutical companies on physicians' decisions. The lower cost of generic drugs may increase drug compliance and disease control. Prescribing behaviour can be improved by emphasising in medical curricula the importance of proper prescription writing based on the use of essential drugs.

In general, the majority (83.8%) of prescriptions in our study contained one to three drugs, and the average number per document was 2.2. This is slightly higher than the WHO recommended limit of 2.0 [2] but lower than figures reported for other countries [1]. Inclusion of four or more drug items in the same prescription was observed in 16% of cases, which is substantially more than reported in most Western countries. Multiple drug prescription (polypharmacy) increases both the risk of drug-drug interactions and the incidence of adverse drug reactions, and it may also reduce compliance.

The most commonly prescribed therapeutic class was NSAIDs. These were encountered in 23.4% of all prescriptions studied, and diclofenac sodium (51.6%) was the most commonly prescribed of this class. Antibiotics were the second most commonly prescribed medication (21.4%), and Amoxicillin-clavulanate was the most common antibiotic. Antibiotic prescription is remarkably less than reported in both eastern and western countries, e.g. Sudan (63%) [13], Iran (61.9%) [14], England (60.7%) [15], and Norway (48%) [16]. Overuse of antibiotics is the principal factor in the emergence of resistant strains of bacterial pathogens. However, in the present study, the low rate of antibiotic prescription does not indicate that the prescription pattern is better than in other countries, as no clinical determinants were documented in any prescription as criteria for justifying prescribing an antibiotic. It is worth noting that both under- and over-prescribing of antibiotics pose important problems in clinical practice. Third on the list were gastrointestinal (GI) drugs (11.5% of prescriptions), of which the spasmolytic hyoscine N butylbromide (butylscopolamine, BuscopanTM) was the most common. The percentage use of other drug classes ranged between 2.6% for cardiovascular drugs to 6.1% for endocrine drugs.

Despite the limitations of the present study, which include the small number of prescriptions studied, and the lack of information on average consultation time, we conclude that drug prescription practices in hospitals should be improved. Implementing institutional guidelines for appropriate prescription writing, basing prescription on the list of essential drugs, and emphasising the importance of these practices in medical school curricula and continuing medical education

programmes are necessary for more rational and safer drug prescribing and successful drug therapy.

References:
1. Karande S, Sankhe P, Kulkarni M. Patterns of prescription and drug dispensing. Ind J Paediat. 2005; 72(2):117-21.

2. Quick JD, Hogerzeil HV, Velasquez G, Rago L. Twenty-five years of essential medicines. Bull WHO. 2002; 80:913-4.International Network for Rational Use of drugs and World Health Organization. How to investigate drug use in health facilities: selected drug use indicators. EDM Research Series No. 7 [WHO/DAP/93.1]. Geneva: World Health Organization. 1993.

3. Anonymus. Pharmacist, GP blamed for coma. The Guardian 1988: 17 March.

4. The Pharmaceutical Professions and Institutions. UAE Federal Law No: 4,1983.

5. Brahams D. Legal liability and the negligent prescription. Practitioner 1984; 228:444-5.

6. Irshaid YM, Al Homrany M, Hamdi AA, Adjepon-Yamorah KK, Mahfouz AA. Compliance with good practice in prescription writing at outpatient clinic in Saudi Arabia. East Mediterr Health J. 2005; 11(5,6):922-8.

7. Meyer TA. Improving the quality of the order-writing process of inpatient orders and outpatient prescriptions. Am J Health System Pharmacy. 2000; 57(Suppl.4):S18-2.

8. Safe Writing. In: Lacy CF, Armstrong LL, Goldman, MP, Lance, LL, Eds. Drug information handbook, 9th ed. Cleveland, Ohio, Lexi-Comp. 2001:12.

9. Yousif E, Ahmed AM, Abdalla ME, Abdelgadir MA. Deficiencies in medical prescriptions in a Sudanese hospital. East Mediterr Health J. 2006; 12(6):915-8.

10. Hamadeh GN, Dickerson LM, Saab BR, Major SC. Common prescriptions in ambulatory care in Lebanon. Ann Pharmacother. 2001; 35:636-40.

11. Guyon AB, Barman A, Ahmed JU, Ahmed AU, Alam MS. A baseline survey on use of drugs at the primary health care level in Bangladesh. Bull WHO 1994; 72:265-71.

12. Bannenberg WJ et al. Evaluation of the Nile Province essential Drugs Project: Mission report by a WHO team, Sudan, 27 April-12 May, 1991. Geneva, WHO. 1991.

13. Moghadamnia AA, Mirbolooki MR, Aghili MB. General practitioner prescribing patterns in Babol city, Islamic Republic of Iran. East Mediterr Health J. 2002; 8(4&5):550-5.

14. Majeed A, Moser K. Age- and sex-specific antibiotic prescribing patterns in general practice in England and Wales in 1996. Brit J Gen Pract. 1999; 49:735-6.

15. Lindbaek M et al. Influence of prescription patterns in general practice on anti-microbial resistance in Norway. Brit J Gen Pract. 1999; 49:436-40.