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Research Article

NEED OF CLINICAL PHARMACIST FOR RATIONALIZATION OF PRESCRIPTION

Naveed Muhammad[1]*, Shahid Zaman[1], Shafiq ur Rahman[1], Salim Khan[2] and Qaisar Ali[1]
[1]Department of Pharmacy, University of Peshawar, Peshawar, Pakistan
[2]Department of Pharmacy, HMC, Peshawar, Pakistan

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*Email: drnaveedrh@gmail.com

ABSTRACT
A cross sectional study was conducted in the Medical ward of Hayath Abad Medical Complex (HMC), Peshawar, Pakistan from 1st June 2009 to 31st December 2009. HMC is one of the teaching hospital in KPK, Pakistan, it consist of 800 beds. The data were collected through prescribed history form and questionnaire designed from the general medical ward. The results indicates that the hepatotoxic drug prescribed in hepatic impaired patients were 5.6% of the study and about 31% drugs were found with improper dose or the frequency of dose was not mentioned. About 12.56% drugs were prescribed without mentioning the duration of therapy while, untreated conditions were found about 15.70% of our study. In the present study 21.46% drug interactions was found. The prescription containing unnecessary drugs without any indication were 7.85%. All these mentioned irrationality were due to the lack of clinical pharmacist in the whole hospital. It is concluded that the presence or involvement of a competent and qualified clinical pharmacist is very essential for the rationalization of the prescription in any hospital or health institution.
Keywords; Hepatotoxic, improper dose or frequency, rationalization

INTRODUCTION

Rational use of drugs through prescription should meet certain criteria such as, the decision to prescribe drug(s) is completely based on medical rationale and that drug therapy is effective and safe. The selection of drugs is based on efficacy, safety, suitability and cost considerations, No contra-indications exist and the likelihood of adverse reactions is minimal and the drug is acceptable to the patient[1-2]. The irrational use of medicine including, the use of too many medicines per patient (polypharmacy), Inappropriate use of antibiotics, often in inadequate dose and duration and for non-bacterial infections, over-use of injections when oral formulations would be more appropriate, failure to prescribe in accordance with clinical guidelines and self-medication[3]. The impact of irrational prescription of drugs also leads to an increase in the occurrence of adverse drug events and the emergence of drug resistance. The rational use of drugs requires the patients to receive medicines appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time and at the lowest cost[4-6]. The manufacturing of pharmaceutical preparations in Pakistan is grossly diverse. There are a large number of pharmaceutical industries manufacturing thousands of preparations and the entire have different brand names. The competition of these manufacturers for sales causing irrational prescriptions. One of the major causes of irrationality is the lack of pharmacist involment in prescription. There is an urgent need to ensure that patients are always given evidence-based, cost-effective and rational treatments. Therefore the present study was planned to investigate prescription pattern in the department of General Medicine ward at HMC (Hayatabad Medical Complex) teaching hospital, KPK, Pakistan. Our research group is working on the standardization of herbal products[7-9] and on the screening of medicinal plants for various pharmacological activities[10-13]. Such type of research work has been included in our future research.

MATERIAL AND METHODS

A cross sectional study was conducted in the Medical ward of HMC, Peshawar, Pakistan from 1st June 2009 to 31st December 2009. HMC is one of the teaching hospital in KPK, Pakistan, it consist of 800 beds. The department of pharmacy in HMC consists of five pharmacist, whose job is dispensing and purchase of drug and drug related products. The patient care is total in the hand of doctors and there is no clinical pharmacist to monitor the prescribed drugs at ward level or at outpatient department. The study was conducted after approval of the chief pharmacist of HMC and Institutional Ethical Committee permission was taken before the start of the study. A verbal permission to record the drugs prescribed to patients was taken from each patient before collecting the data. The names of the patients and prescribing doctors were kept confidential throughout the study. The data were collected through a profarma from the admitted patient daily. Drug index was used for the brand name of the prescribed medicines while BNF, stocklay drug interaction and research articles were used as reference materials. The profarma was consist of hepatic effect of the drug, dose, duration of therapy for each drug, frequency of the dose, strength of the drug, untreated condition, drug interaction, narrow therapeutic index and unnecessary drugs.

RESULTS AND DISCUSSION

During the study period 734 prescriptions were analysed, the average prescribed drugs were 5 drugs per prescription. The major problems of the patients were hepatitis, liver cirrhosis, malaria, tuberculosis and diabetic plus hypertension. The most prescribed drugs were antibiotics and omeprazole. The prescribed antibiotic of various classes were 74 % as shown in figure 1.

Hepatotoxicity

The hepatotoxic drug prescribed in hepatic impair conditions were 5.6%. In one of prescription panadol (paracetamol) and neubral (paracetamol plus orphenadrin citrate) were given to a hepatic patient similarly maxolon (metchlopromide) was

prescribed to one of hepatic patient for vomiting in high dose despite of the warning to reduce dose in hepatic impairment.

Improper dose

About 31% drugs were found with improper dose or the frequency of the dose was not mentioned. The dose and frequency both are very important for the best therapeutic effect. In most of the prescription the dose and frequency of drug was not mentioned for prednisolon, paracetamol and antibiotics like cephazolin, cifixim etc. the excessive dosing was observed for omeprazol (40 mg, BD), ranitidine (150mg TDS), while for some drug the dose was not mentioned in the treatment chart. The loading dose of quinine was not given to several malarial patients.

Duration of therapy

Duration of therapy is very necessary for the management of some diseases like malaria, hepatitis, tuberculosis and even for antibiotics therapy. About 12.56% drugs were prescribed without mentioning the duration of therapy. This mistake was mostly seen in anti-tuberculosis and antibiotics drugs and the mentioning of duration for both these was very necessary.

Untreated conditions

It was seen that the patients were suffer from various diseases and in prescription the treatment of some problems were totally ignored such as nausea, vomiting, diarrhea and even anemia. Untreated conditions were found about 15.70% of our study.

Drug interactions

Drug interaction is one of the key topic in clinical pharmacy, in the present study 21.46% drug interactions was found. Beside the minor drug interaction some important interactions are presented in table 1. The steroids (prednisolon) were most frequently prescribed with non-steroidal anti-inflammatory drugs which increase the risk of gastrointestinal bleeding[14].

Unnecessary Drugs

The prescription containing unnecessary drugs without any indication was found 7.85%. Such types of drugs were mostly PPIs (proton pump inhibitors), H2 receptor blockers and multivitamins. In most of cases anti malarials were given without confirmation of malaria by laboratory test. This study was carried out in a teaching hospital (HMC) of Pakistan, as the hospital has a pharmacy department but no clinical pharmacist is there for interpretation of the prescription. The above mentioned irrationality is total the result of lack of clinical pharmacist. The health care team in this hospital are doctors and nurses, the doctors prescribing the medications and nurses dispense. As the pharmacist know better than physician about medicines therefore the lack of clinical pharmacist results in such mistakes which may fetal for the patients health and even cause drug induce diseases. Pharmacist can monitor these aspects of the prescription in a professional way. The monitoring drugs in hospital by pharmacist are beneficial not only for the patient but also for the physician.

CONCLUSION

It is concluded that in each health institution the presence of clinical pharmacist for the evaluation of prescription is very necessary. Such activities will be helpful for the better treatment of patient as well as for the institution economics.

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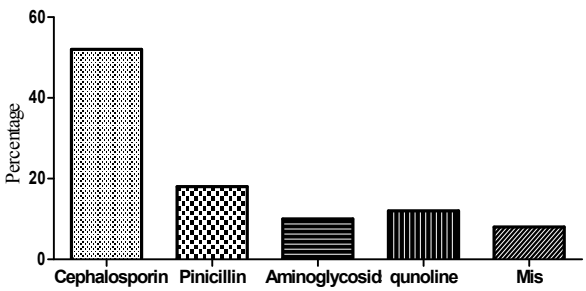


Figure 1: The prescribed antibiotic (74%) of various classes. Bar presents the percentage of each class of antibiotic.

Table 1: Some important drug interactions

s.no	Dugs	Comments
1	Paracetamole and isoniazid	Paracetamol was most frequently prescribed with isoniazed, which can cease hepatic necrosis [15].
2	Furosemide and gentamycin	Both of these are ototoxic [16]
3	Salbutamol and proprenolol	Beta-blockers may reduce the therapeutic effect of beta2-Agonists, risk of asthma. Particularly relevant with nonselective beta-blockers[17]
4	Aspirin and lisinoprile	The coadministration of aspirin with lisinopril decrese the vasodilator and hypotensive effects of ACE inhibitors[18] .
5	Diazepam and refampicin	The metabolism of diazepam is accelerated by refampicin leading to the ineffectiviness of diazepam[19].
6	Clopidogrel and omeprazole	Most proton pump inhibitors like omeprazole inhibit the bioactivation (metabolism) of clopidogrel to its active metabolite [20-21]

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