

Study of Prescribing Pattern for Rational Drug Therapy

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Abstract

The present study of prescribing pattern for evaluation of rational drug therapy was carried out in Jammu city for a period of six months. Two hundred prescriptions written by qualified medical graduate and postgraduate doctors were collected and studied for their correctness and rationality. The doctor's identity, patient's name, age and address, superscription, route of administration and duration of therapy were mentioned in 27%, 100%, 27%, 5%, 63%, 20% and 66% of prescriptions respectively. Drug use has been found to be inappropriate in 33% of the drugs and large number of prescriptions do not conform to the ideal pattern.

Key Words

Prescribing patterns, Rational drug therapy, Prescription format

Introduction

Bad prescribing habits lead to ineffective and unsafe 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 prescribing (1). Irrational prescription of drugs is of common occurrence in clinical practice (2). Important reasons being lack of knowledge about drugs, unethical drug promotions and irrational prescribing habits of clinicians. Monitoring of prescriptions and drug utilization studies can identify the problems and provide feedback to prescribers so as to create an awareness about irrational use of drugs (3). 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 (4). The present study was undertaken to identify the problem of irrational drug use in Jammu and suggest remedial measures to make drug therapy more rational.

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Material and Methods

The retrospective study was carried out from November 2001 to May 2002. About two hundred prescriptions written by qualified medical graduate and post graduate doctors were collected. Patients visiting out patient departments of S.M.G.S. Hospital, private clinics in Jammu city or pharmacy shops around S.M.G.S. Hospital Jammu were approached and requested to have their prescriptions xeroxed. Those patients who agreed to the request, were also interviewed to have information about.

- Patients demographic data -age, sex, address and diagnosis.
- Chief complaints for which medical advice was sought.
- Brief medical history.
- Drug history i.e. dose, dosage, amount of drug used or use of other corrective measures
- Drug allergies.
- Any other remarks.

The collected prescriptions were evaluated for

- (1) Adherence to prescription format.

(2) Rationality of prescription.

Adherence of prescription format

For studying adherence to prescription format following features of prescription were analysed :-

- (a) **Identification of patient** : whether name, age, sex and address of the patient were mentioned or not.
- (b) **Superscription** denoted by 'Rx'. Prescriptions were analysed for presence or absence of 'Rx' and also whether some other mode of writing superscription was used or not.
- (c) **Inscription** : It included analyses of number, name, dose and dosage of drugs used.
- (d) **Subscription** : Whether directions regarding dosage forms and total amount of drug to be dispensed were given to the pharmacist or not.
- (e) **Transcription or signa** : Whether instructions regarding use of drugs were given to the patient or not.
- (f) **Prescriber's identity** : Whether name, registration number and address of the prescriber were mentioned or not.
- (g) Date of issuing the prescription, whether mentioned or not.

For rationality of prescription

- Number of drugs prescribed.
- Number prescribed in generics.
- Number of fixed dose combinations used.
- Dose strength and dosage of drug whether written or not.
- Duration of therapy - short, long, or not mentioned.
- Banned drug formulations.

All the drugs used were assigned different categories using criteria suggested by Kunin *et. al.* (5).

Results

Patient's Identity : Name, age, address were mentioned in 100%, 27% and 5% of the prescriptions respectively. Weight was mentioned in only 12% of paediatric patients. Date of writing prescription was mentioned in 94% of prescriptions.

Superscription : Traditionally denoted by letter 'Rx' was mentioned in 63% of prescriptions and in 10% of prescriptions, it was replaced by word 'Adv' Twenty seven percent of prescriptions were without superscription.

Inscription & Subscription : It consists of four components i.e base, adjuvant, corrective and vehicle. Since only already compounded drugs were studied, these components of inscription were not analysed separately. Route of drug administration was mentioned in 20% of drugs only, rest of the drugs were in oral dosage forms (97%). However, dosage forms were mentioned in only

80% of the drugs. In 66 % of prescriptions, duration of therapy was not mentioned and hence the quantity of drug to be dispensed was not known.

Instructions to the patient : Instructions to the patient were inadequate in 32% of the prescriptions. Instructions were given using Latin abbreviations in 62%, simple English in 21% and diagrams in 17% of the prescriptions. Instructions regarding refilling of prescription and substitution of products were not given in all the cases.

Prescriber's Identity : Name and qualification of the prescriber were known in 27% of the prescriptions. Registration number was known in only 2% of the prescriptions.

For rationality of prescription:- Average number of drugs per prescription was 2.53. Drugs were prescribed under a generic name in only 5% of cases. Fixed drug combinations were used in 29% of prescriptions.

Dose strength & dosage : Dose and dosage were not mentioned in 27% of the prescriptions. In those cases where dose and dosage were mentioned, these were found incorrect in 11% of the prescriptions. In paediatric patients, weight of the child had not been measured in majority of the cases and hence appropriateness of the dose could not be made out.

Duration of Therapy : Duration of therapy was not mentioned in 66% of prescriptions. In majority of the cases, instruction regarding duration of drug therapy were verbal. In those cases where the duration had been mentioned, it was found to be correct in 43%, short in 37% and prolonged in 20% of prescriptions.

Overprescribing : Over prescribing was encountered in 7% of the prescriptions e.g paracetamol was prescribed in addition to various anticold preparations which already contain paracetamol, more than one NSAIDS was prescribed to same patients.

Interactions : 8% of prescriptions showed various types of drug interactions e.g Calcium and Iron had been prescribed together without proper advice regarding spacing of the intake of these drugs. Iron preparations were advised to be taken with milk.

Banned drug formulations : None of the drugs banned by drug controller of India were used in the present study.

On analysis of various drugs based on the criteria suggested by Kunin *et al*, 1973 (5), it has been found that use of drug was inappropriate in 33% of the cases.

Table I - Analysis of Prescriptions

Particular	Number
Total Number of Prescriptions	200
Total Number of Drugs used	506
Average Number of Drugs per prescription	2.53
Drugs prescribed under generic names	26 (5.13%)
Drugs prescribed under brand names	480 (94.86%)
Fixed dose combinations used	46 (28.85%)
Dose and dosage not mentioned	136 (26.87%)
Duration of therapy not mentioned	334 (66%)

Discussion

Two parameters were assessed in the present study i.e adherence to prescription format and rationality of prescription. Results obtained after auditing prescriptions for prescription format indicate that majority of prescriptions do not adhere to the ideal pattern of prescription writing. Important demographic parameters like age and sex were not written in majority of the cases. Weight of the patient which is so important in calculating the dose of drug in paediatric patients was missing in 88% of such prescriptions. Directions regarding total amount of drug to be dispensed and instructions regarding use of drug were inadequate in 50% & 39% of the prescriptions respectively.

Second component of the present study was auditing prescriptions for rationality. Analysis of this component also revealed that lot more needs to be done. Though quality of prescribing is associated with use of relatively limited number of pharmaceutical products (6). It is preferable to keep mean number of drugs as low as possible since higher figures always lead to increased risk of drug interactions and increased treatment cost (7,8). Average number of 2.53 drug per prescription in the present study was less than that reported by various Indians and international workers (9-11).

Prescribing under generic name is considered economical and rational but only 5% of the prescriptions were written under a generic name. Though this figure is higher than that reported by some Indian researchers yet it is too little to be considered rational (10).

Overprescribing was found only in 7% of the prescriptions, a figure far less than that reported by other Indian researchers (10). It was also found that drug use was found to be inappropriate in one-third of the cases. Antibiotics were the most inappropriately used drugs. This

not only exposes patients to avoidable adverse drug reactions but also problems of drug resistance. From the results of the present study, we conclude that

- Authorities should arrange periodic refresher courses in rational drug therapy and in latest management of disease for the doctors.
- More emphasis needs to be laid on teaching the art of writing a prescription to undergraduate and postgraduate students. A week's posting in clinical pharmacology and therapeutics if possible, should be taught over during internship and this period should be utilized in teaching prescription writing and rational drug therapy.

This study has limitations in the sense that total number of prescriptions was only two hundred and in order to confirm these findings more studies are needed to be done.

References

1. M de Vries, TPG, Henning RH, Hogerzeil HV, Freste DA. Guide to Good prescribing. A practical guide W.H.O. 1994.
2. Ramsay L E. Bridging the gap between clinical pharmacology and rational drug prescribing. *Br J Clin Pharmacol*. 1993 ; 35 : 575-6.
3. Pradhan SC, Shewade DG, Shashindren CH, Bapna JS. Drug utilization studies. *National Med J India* 1988; 1 :185-89.
4. Molstad S, Hoveliuss B, Kroon L, Melender. A prescription of antibiotics to out patients in hospital clinics, community health centre & private practice. *Eur J Clin Pharmacol* 1990; 39 : 9-12.
5. Kunin CM, Tupasi T, Craig WA. Use of antibiotics : a brief exposition of problem and some tentative solutions. *Ann Intern Med* 1973; 79: 555-60.
6. Bergman U, Popa C., Tomson Y *et. al*. Drug utilization 90% - a simple method for assessing the quality of drug prescribing. *Eur J Clin Pharmacol* 1998; 54: 113-18.
7. Nies SA. Principles of therapeutics. Gilman G A, Rall W T, Nies SA, Taylor P, (Eds). The pharmacological basis of therapeutics 8th Eds New York Pergamon Press 1990; 62-83.
8. Atanasova I, Terzivaov D. Investigations on antibiotics in a hospital for a one year period. *Int J clin Pharm Ther* 1995; 33 : 32-33.
9. Minocha KB, Bajal Sanjay, Gupta Kanchan, *et. al*. A clinico pharmacological study of out patient prescribing pattern of dermatological drugs in an Indian tertiary hospital. *Ind J Pharmacol* 2000 ;32 : 384-85.
10. Ansari KU, Singh S, Pandey RC. Evaluation of prescribing patterns of doctors for rational drug therapy. *Ind J Clin Pharmacol* 1998; 30 : 43-46;
11. Rehana HS, Nagarani MA , Rehana Moushumi . A study on the drug prescribing pattern and use of antimicrobial agents at a tertiary care teaching hospital in eastern Nepal. *Ind J Pharmacol* 1998; 30:175-80.