Original Research Article

Prescribing Pattern and Assessment of Rational Use of Drugs by Private Practitioners in Nanded City

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ABSTRACT

Background: Irrational prescription is a common occurrence throughout the world. Irrational drug use leads to reduction in the quality of drug therapy, wastage of resources, increased treatment costs, increased risk for adverse drug reactions and emergence of drug resistance. **Objective:** To evaluate the prescribing pattern adopted by clinicians and assessment of rational use of drugs.
Methodology: The cross sectional prospective study was conducted by collecting prescriptions from patients attending private outpatient departments and pharmacies in Nanded City. Total 760 prescriptions had been collected from Sept. 2012 to Nov. 2013.
Results: Clarity and readability of prescription was observed in only about one-third (33%) of the prescriptions, the average no of drugs per prescription encounter was 3.40. The most surprising finding was that less than one-third (31.29%) were from the WHO essential drug list. The assessment of rationality of the prescriptions revealed that 85% prescriptions were rational for dosage, 45% were rational for frequency of administration, and 83 % were rational for the duration of therapy.

Key words: Prescription, private practitioners, rational use of drugs, essential drug list

INTRODUCTION

Prescription writing is a science and art, as it conveys the message from the prescriber to the patient. A prescription order is a written instruction of doctors to pharmacist to supply drugs in particular form to a patient and the directions to the patients regarding the use of medicines. It is important therapeutic translation between the clinician and the patient. Prescribing is a complex task requiring diagnostic skills, knowledge of medicines, an understanding of the principles of clinical pharmacology, communication skills, appreciation of risk and uncertainty. Prescribers can only treat patients in a rational way if they have access to an essential drugs list and essential drugs are available on a regular basis. [1] Many

factors are known to adversely affect prescribing behaviour such as unethical drug promotion, direct to consumer advertising, lack of knowledge and non-availability of drugs. [2]

Irrational prescription is a common occurrence throughout the world. It is seen everywhere (in teaching and non teaching institution) at all the levels (senior and juniors) and in all categories (family physicians, specialists, and super specialists).[3] Frequently observed irrational use of medicine includes the use of too many medicines per patient (poly-pharmacy), inappropriate use of antimicrobials, over use of injections and vitamins.[4] Irrational drug use leads to reduction in the quality of drug therapy, wastage of resources, increased treatment costs, increased risk for adverse drug reactions and emergence of drug resistance. [5] This is especially true in case of developing countries such as India with a huge population that makes access to health care delivery systems difficult.[6] Bad prescribing habits lead to ineffective and unsafe treatment, exacerbation or prolongation of illness, distress and harm to the patient and higher costs.[7]

The practitioners should be made aware of the importance of combination therapy in the treatment of certain infections; so that the chance of resistance development can be ameliorated to the most possible extent.[6] It can also be minimized by prescribing drugs by generic name and selection of drugs from essential medicine list. Generic drugs are substitute of branded drug without any patent protections with similar efficacy but 40 to 60% cheaper than branded drugs.[8] Another approach to preventing irrational prescribing habits is prescription audit (PA), from which they get regular feedback about their prescriptions.[9] Quality of treatment can be improved by setting certain standards at all levels of health care delivery systems. It is important to assess the quality of patient care through proper surveillance. [10]

Aim and objectives:
The aim of study was to evaluate the prescribing pattern adopted by private practitioners and assessment of rational use of drugs.

MATERIALS & METHODS
The cross sectional prospective study was conducted by collecting prescriptions from patients attending private OPDs and pharmacies in Nanded City. Total 760 prescriptions had been collected from Sept. 2012 to Nov. 2013. The prescriptions were analysed for the presence of following information as patient's name, age, sex, address, profession, symptoms, provisional or confirmed diagnosis, medication therapy, names of drugs, strength of drug, dose, frequency, duration of therapy, route of administration, name and signature of the prescribing doctor and any other remarks. Prescriptions were studied to observe whether they confirm to the following parameters of a typical prescription:

A) Evaluation on clarity of prescription was made using four points rating scale:
1) All aspects of prescription were very clear, 2) Clear but effort required to read, 3) One aspect (name of drug/dose/duration) not clear and 4) More than one aspects not clear

B) For format of the prescription:
1) Superscription: Patient Name, age, sex, address, weight, date on which the prescription was issued and Rx meaning "take thou" or "recipe".
2) Inscription: the name of drugs, dose, dosage forms, and total amount of medication prescribed
3) Subscription: the dispensing and compounding instructions to the pharmacist as regards to form and quantities to be dispensed or supplied.

4) Transcription or Signa: instructions for the patient for use of drugs.

5) Prescriber's identity: Name, address and qualification and registration number

C) For Rationality of the Prescription:
WHO guidelines were taken into consideration for evaluating the rationality of the prescriptions i.e. (1) Dose strength and dosage schedule: whether the strength of drug, its dosage form and schedules are correct, (2) Duration of therapy: under or over duration or not mentioned.

Exclusion criteria:
Surgical follow up cases and other follow up visits of patients attending the OPD with the same complaints with which they had previously come to the OPD during the study period were not included.

Data was collected for the above given parameters and analysed for percentage and averages using Graph pad prism 5.01 version.

RESULTS

In the present study data was collected for the details of prescriber. It has been found that letter head had been used by all of the private practitioners. Name was mentioned over all letterheads. Address was mentioned over every prescription. However registration number was mentioned over 754 (99.21%) of prescriptions. 514 (67.63%) of the practitioners did not mention their qualifications. Table 1

Prescriptions have been analysed for the details of the patients (Table 2). It has been found that patient's name age and sex had been mentioned in majority of the prescriptions. Very few i.e. 34(4.47%) of the prescription had mentioned weight of the patient. Residence was mentioned in 590(77.63%) of the prescriptions. 60(7.89%) of the prescriptions had symptoms written over it. Duration of disease was mentioned in only 42 (5.52%) of the prescriptions. Diagnosis was written in 88(11.57%) of the prescriptions.Table2

Table 1: Information about prescriber.

Indicators	No.	Percentage%
Use of letterhead	760	100
Name of the doctor mentioned	760	100
Address mentioned	760	100
Registration number mentioned	754	99.21
Qualification mentioned	514	67.23

Table 2: Information about Patients.

Indicators	No.	%%
Patient's name mentioned	694	91.32
Age mentioned	656	86.32
Sex mentioned	648	85.26
Weight mentioned	34	4.47
Residence mentioned	590	77.63
Symptoms mentioned	60	7.89
Duration of disease mentioned	42	5.52
Diagnosis mentioned	88	11.57

Regarding clarity of prescription it had been found that in 246(32.36%) of prescriptions there was not any problem in reading it. While 438(57.63%) required efforts to interpret the written things. In 58(7.63%) of prescription one aspect of the drug was not clear while in 18(2.36%) more than one aspect was not clear.Table3

Regarding the dosage and frequency of drug advised by practitioners in 280 (36.84%) of prescriptions it was clearly mentioned however in 396(52.10%) it was clear but difficult to interpret. In 56(7.36%) neither it was clear nor easy to interpret for one medicine while in 28(3.68%) of prescriptions it was neither clear nor easy to interpret for more than one medicines.Table3

Instructions given to the patient were found clear in only 256(33.68%) of the prescriptions while it was found that effort was required to interpret the instructions in 418(55.00%) of the prescriptions. Table 3

Table 3: Clarity of prescription.

Sr. No.	Indicators	No.	%%
DRUG NAME CLARITY			
1	No problem in reading the prescription	246	32.36
2	Clear but required effort to interpret	438	57.63
3	One aspect of the drug not clear	58	7.63
4	More than one aspect of the drug not clear	18	2.36
DOSE AND FRQUENCY			
1	Dose & frequency clear	280	36.84
2	Clear but difficult to interpret	396	52.0
3	Either criteria not met for 1 medicine	56	7.36
4	Either criteria not met for more than one medicine	28	3.68
INSTRUCTIONS TO THE PATIENT			
1	Clear	256	33.68
2	Effort required to interpret	418	55.00
3	Instructions for 1 medicine not clear	68	8.94
4	Instructions for more than one medicine not clear	18	2.36

On analysing the prescription it was found that not a single drug had been prescribed by its generic name. 580(22.46%) of prescriptions were having vitamins/ hematinics / tonics in it. Only 808(31.29%) drugs were prescribed as per from the list of WHO essential drugs. Table 4

Table 4: Content of prescription.

Sr. No.	Indicators	Number
1	Total number of drugs prescribed	2582
2	Average number drugs per encounter	3.40
3	Total number of injectables	18
4	Number of drugs prescribed by generic name	00
5	Number of antibiotics prescribed	492(19.05%)
6	Number of analgesics prescribed	413(16%)
7	Number of vitamins/hematinics/tonics prescribed	580(22.46%)
8	Number of GIT drugs(ranitidine, omeprazole, rabeprazole, metoclopramide,domperidone etc.) prescribed	718(27.81%)
9	Number of anti-histaminics prescribed	123(4.76%)
10	Number of cough formulae prescribed	238(9.22%)
11	Number of drugs from WHO essential drug list	808 [31.29%]

On assessing the rationality of prescription it had been found that 645(84.86%) of the drugs were prescribed in dosage form. Frequency of administration was mentioned in 340(44.74%) of them and Duration of therapy was maintained in 630(82.89%) of the prescription.

DISCUSSION

In the present study the drug prescription pattern of private practitioners has been studied to assess the rationality of drugs used. In this study it had been found that the prescriber had mentioned his/her name in 100% of the prescriptions and also mentioned his qualification on 67.63 % of the prescriptions while registration number was mentioned in 99.21% of the prescriptions. In a similar study conducted by Pavani et al. at Warangal had found that 100% of the prescriptions had name and qualification of prescriber and 100% had mentioned their registration number. [10]

Regarding details of patients 91.32% had mentioned names of patient. Age and sex was mentioned in more than 85% of prescriptions. Very few 4.47% prescriptions had mentioned weight of the patient. Symptoms was mentioned in 7.89% of prescriptions while duration in 5.52%. Diagnosis was mentioned in only 11.57% of the prescriptions. Similar findings were also

reported by Sharma P., [8] Pavani V et at [10] and by Y Neyaz et al. [11]

In present study it has been found about drug name that in 246(32.36%) of prescriptions there was not any problem in reading it. In a study conducted by Ajit S et al it was found that in 95.2% of prescriptions there was not any problem in reading it. However 4.3% prescriptions required efforts to read it. [12]

In this study dosage and frequency of drug advised by practitioners in 280(36.84%) of prescriptions was clearly mentioned however in 396(52.10%) it was clear but difficult to interpret. In study conducted by Kumar Manoj et al found that details of dose and frequency was absent or not clear in 26% of total drugs prescribed for government doctors. [13] In another study done by Ajit et al it was found that clarity of dose of prescription was 96.3 % in both study and control group. [12]

In this study Instructions given to the patient were found clear in only 256(33.68%) of the prescriptions while it was also found that effort was required to interpret the instructions in 418(55.00%) of the prescriptions. However in 68(8.94%) the instructions were not clear for one medicine and 18 (2.36%) instructions were not clear for more than one medicine. In the study conducted by Ajit S et al at urban health training centre he found that in both cases and controls the instructions were very clear immediately in 95.2% and 97.8% of the prescriptions while only 0.4% of the prescriptions were having unclear instructions for one drug. [12] In his study Pavani V et al observed that Instructions to the patient were inadequate in 32 % of the prescriptions. Instructions were given in simple English in 20% and using local language in 80 % of the prescriptions. [10] Another study done by S Pushpendra et al at Jammu private hospitals had found that 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. [14]

The WHO expects a 100% prescription of drugs in generic name. But in the present study it has been found that only 808 drugs among the 2582 total drugs prescribed were from WHO essential drug list, and none of the drug had been prescribed by its generic name, There were 492 antibiotics and 580 vitamins/hematinics/tonics were prescribed. In a similar study conducted by Binu Matthew et al in private tertiary care teaching hospital it was observed that only 14.83% of the drugs were prescribed by their generic name, antibiotics were prescribed in 49.99% of the prescriptions injections were given in 11.9% of the cases while 70.26% of the drugs were from the essential drug list. [15] Bhattacharya Arin in his study in his study in private hospital in Bilaspur found that 16.22% of the prescriptions had vitamins and minerals prescribed in it and 27.2% had antibiotics prescribed by the practioners. [16] Jain Shipra et al in their study observed that generic drugs were prescribed in only 8.33% of the prescriptions, while antibiotics comprises 63.33%, injection- 13.66% of them. 89% of the drugs were prescribed from the essential drug list. [6] In a similar study conducted by Begum et al it was found that generic drugs were only 0.20% and drugs prescribed from essential drugs list were only 46.3%. [1] Inappropriate prescribing antibiotics, vitamins and supplements must be discouraged as they increase the risk of drug interactions, antibiotic resistance and also add to the cost of the treatment. [17]

On assessing the rationality of prescription in present study it was found that dosage form was mentioned in 84.86% of the prescription, frequency was mentioned in 44.74% and duration of therapy was mentioned in 82.89% of the

prescriptions. In a similar study by Pavani V et al it was found that Dose and dosage were not mentioned in 25.2% of prescriptions and duration was not mentioned in 42.3% of prescriptions. [10]

S Pushpendra et al in his study observed that dosage was not mentioned in 26.87% while duration was not mentioned in 68% of the prescriptions. [14] In study done by Begum et al it was observed that 72.5% prescriptions had dosage and duration mentioned over it. [1] This was further supported by the study conducted by Shipra et al in which it was observed that dosage and frequency was mentioned in 100% of the prescriptions while dosage form and duration was mentioned in 98.66% and 92.66% respectively. [6] Manoj et al found that 96.1% of the prescriptions had details of dosage and route while 26% prescriptions did not mention about dose and frequency. [13]

CONCLUSION

From this study it is revealed that prescribing pattern of the private practitioners is mostly irrational regarding polypharmacy, generic prescribing, use of antibiotics, drug selection from essential drug list and provision of information. Though irrational prescribing habit is difficult to cure, prevention is possible. Intervention in the form of short problem based training course in pharmacotherapy and rational use focused workshops can improve prescription behaviour and skills. [18] Government should also formulate clear and comprehensives rules to ensure rational prescribing.

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