

ORIGINAL ARTICLE

Prescribing Patterns in Hospital Inpatients

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ABSTRACT:

Objective: To evaluate the prescribing patterns by an audit of prescriptions in hospital inpatients.

Materials and methods: After a written informed consent from the medical ward incharge & hospital administrator 32 case notes of adult patients discharged from a private hospital in Malir were collected from 1st to 30th April 2012. Patients demographics, disease & prescription details (number, type, dose, route, frequency, duration of drug use, tendency of polypharmacy, cost of drugs & discharge notes) were entered in a specially designed performa.

Results: Mean age of patients was 27.18 years with 14 males & 18 females. They were diagnosed to have enteric fever (10), gastroenteritis (5), RTI (4) & others (13). Average hospital stay period was 2.5 days. Total number of drugs used were 120, of which only 5 (4.17%) were prescribed by generic name. 25.83% drugs were from National Essential drug List of Pakistan (NEDLP). Mean number of drugs per patient was 9.35. Antibiotics & analgesics each was given to 29 (90.63%) patients. Anti-ulcer drugs were given to 27 (84.38%) & nebulization to 11 (34.38%) patients without need. Average cost of drugs per patient was 1200 rupees. None of the prescription was complete for the above mentioned parameters.

Conclusion: Audit of prescribing patterns in hospital inpatients of a private setup showed irrational use of drugs.

Key Words: Prescribing patterns, Private hospital, Inpatients, Rational use, Drugs

INTRODUCTION:

Once a patient with a clinical problem has been evaluated & a diagnosis is reached the most common chosen option is by far the drug therapy. Around the world more than 50% of all medicines are prescribed, dispensed or sold inappropriately. This ineffective & inefficient use of drugs commonly occurs at health facilities in developing & developed countries.¹ Evidence suggests that more appropriate utilization of prescription drugs has the potential to lower the total expenditure & improve the quality of care.² Thus drugs are the essential tool for preventive, curative and rehabilitation in health care.³ The overuse, underuse or misuse of medicines results in wastage of scarce resources & widespread health hazards. WHO conference of experts has given a guideline to the health care providers in 1985, that all patients should be given medications appropriate to their clinical needs in an adequate dose that is as per requirement of the individual. These drugs should be administered through an appropriate route for an adequate period of time & above all should be available at the lowest cost to the community.⁴ Drugs are prescribed to the patient by the prescriber which in our scenario is traditionally the physician. However in many states of America, health care practitioners other than MD and physicians can write prescriptions. Licensed physician's assistants, nurse

practitioners & pharmacists can prescribe medications under various circumstances.⁵ Prescription is a prescriber's order, a written direction to prepare, dispense or administer a specific treatment. Moreover it is a legal order and therefore should be dealt with great care & attention.⁶

As per cycle of drug use (Figure-1) there are 5 phases in the use of any drug. These are (I) diagnosis (II) prescribing (III) dispensing (IV) adherence & (V) follow-up.⁷ Although the physician /doctor/ prescriber has impact on all these phases but a more direct effect is seen on the first two phases. At the level of prescribing the commonly encountered problems are

A) Under-prescribing where:

Needed medications are not prescribed
Dosage is inadequate for treating the disease
Length of treatment is too brief

B) Incorrect prescribing where:

Drug is given for incorrect diagnosis
Wrong drug is selected for the diagnosis
Prescription is prepared improperly
Adjustment is not made for co-existing medical, genetic or other factors

C) Extravagant prescribing where:

A less expensive drug can provide comparable efficacy and safety & is not given

Symptomatically treating mild conditions & diverting funds from treating serious illnesses

D) Over-prescribing where:

Drug is not needed and is still given
Dose is too large for any disease treatment
Treatment period is too long than actually needed

E) Multiple prescribing where:

Two or more medications are used when fewer would achieve the same effect

Several related conditions are treated when treatment of

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primary condition would improve or cure the other conditions.⁸

It is documented that effective plan design, strategies utilizing generic substitutions, rational prescribing & use of formulary can help manage cost while maintaining quality & customer satisfaction. Before such strategies can be implemented prescribing patterns of clinicians must first be explored.⁹ The study of prescribing pattern is a component of medical audit that does monitoring and evaluation of the prescribing practice of the prescribers as well as recommends necessary modifications to achieve rational & cost effective medical care.¹⁰ This helps to evaluate & suggest modifications in prescribing practices of medical practitioners so as to make medical care rational & medical profession high esteemed.¹¹ Few studies are documented in Pakistan on hospital inpatients & that too are mainly on pediatric population. Present study was done to audit the prescribing patterns in the adult inpatients of a private hospital.

MATERIALS & METHODS:

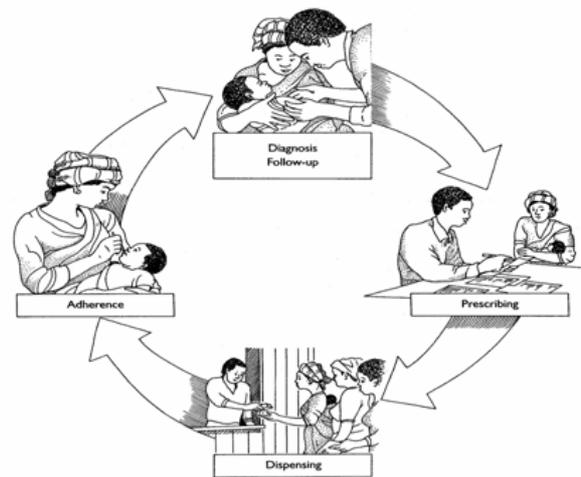
This pilot study was approved by IRB/ERB-BUMDC through letter ERC03/12. After a written informed consent from the medical ward incharge & hospital administrator 32 case notes of patients discharged from a private hospital in Malir, Karachi were collected from 1st April to 30th April 2012. Patients demographics, disease & prescription details were entered into a specially designed performa. Case notes of medical ward inpatients of both genders more than 18 years with proper diagnosis and with or without concurrent illness were included in the study. Audit of the prescribing practices in these hospital inpatients was done by determining the number, type, dose, route, frequency & duration of drug use. Tendency of polypharmacy, cost of drugs & follow up of patients was also ascertained. SPSS version 17 was used for analysis of data.

RESULTS:

Mean age of 32 patients was 27.18 years with 14 males & 18 females. They were diagnosed to have enteric fever (10), gastroenteritis (5), RTI (4) & others (13) [Fig: 2]. Total number of drugs used were 120, of which 115 drugs were prescribed by brand name and only 5 (4.17%) were prescribed by generic name [Fig: 2]. 31(25.83%) drugs were from National Essential Drug List of Pakistan (NEDLP) [Fig: 2]. Antibiotics & analgesics were given to 29 (90.63%) patients respectively & their main route of administration was parenteral with most injections given intravenously. Vitamin injections were given to 6 (18.75%) patients. Anti -ulcer drugs were given to 27(84.38%) & nebulization of Ipratropium Bromide (Atrovent) to 11 (34.38 %) patients without need that is treatment not in accordance to their respective diagnosis [Fig: 3]. Average hospital stay period was 2.5 days. Average number of drugs prescribed per patient was 9.35

and average cost of drugs per patient was 1200 rupees [Fig: 3]. None of the prescriptions was found to be complete for route, dose, frequency & duration of drug use. Discharge notes were present in only 18(56.25%) sheets and they were also incomplete [Fig: 3]

Fig: 1
Process of drug use (RUD cycle)⁷



Results:
Fig: 2

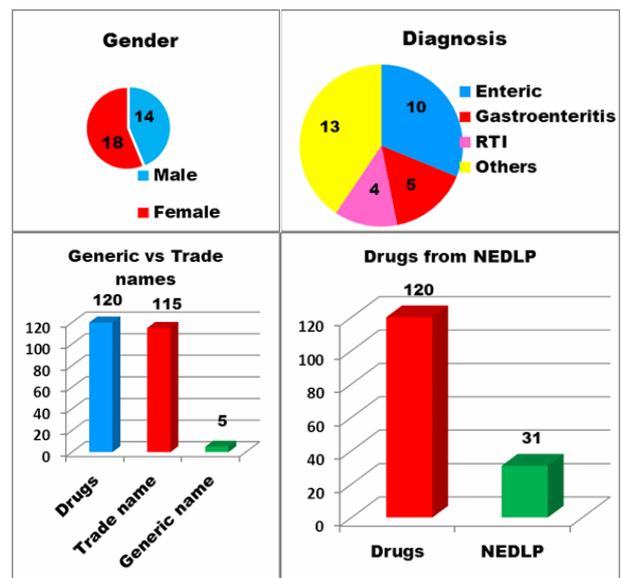
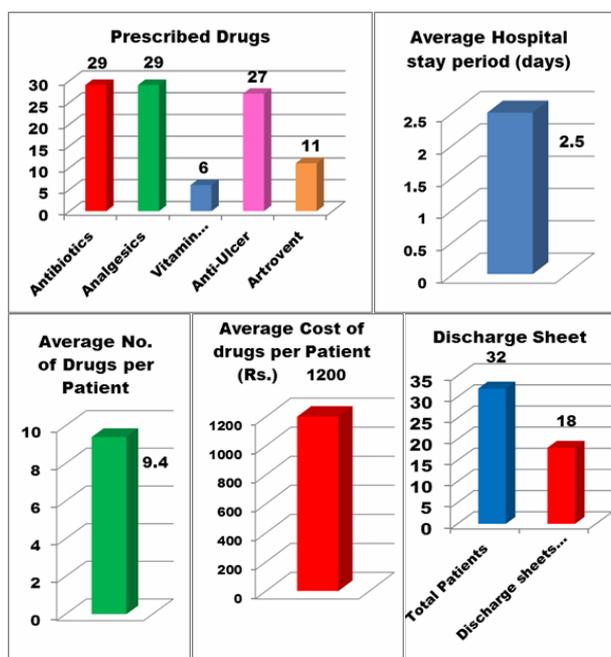


Fig 3



DISCUSSION:

The widespread use of many new and powerful drugs and the increasing recognition of adverse effects have stimulated interest in the manner in which physicians prescribe drugs. The three main sources of information about the prescribing patterns of physicians are marketing research data, studies of general practice and monitoring of prescribing in hospitals.¹² Aggressive drug marketing promotions, lack of information on the use of drugs & drug shortages are said to be the major causes of irrational drug use. The rational use of drugs demands prescription of appropriate drugs.¹³ Prescribing practices of the consultants in Karachi, the home of at least eight medical colleges has been documented as non-rational.^{14,15,16} We collected 32 case sheets of patients discharged from the medical ward of a private hospital in Malir, Karachi from 1st April to 30th April. They showed mean age of patients 27.18 years with 14 males & 18 females. They were diagnosed to have enteric fever (10), gastroenteritis (5), respiratory tract infection (4) & others (13). Mengistu has documented a similar data where case sheets of 36 adults admitted to the medical ward of Jimma hospital from first April 2002 to 30th May 2002 were evaluated. They had mean age of 30 years with diagnosis of TB (8), diabetes (6), cardiac disease (5) & others (17).¹⁷ By definition, a product identified by its official chemical name rather than an advertised brand name (propriety or trade name) is called a generic. It exerts its pharmacological effects at the same site, supposed to show the same potency, same dosage form & same bioavailability as a brand name.¹⁸ Higher generic drug prescription rate implicates less cost on health care with similar efficacy in clinical results.¹⁹ In our study a total of 120 drugs were used & only 4.17% were prescribed

by the generic name in contrast to 45.2% & 23.6% at HUKM, a teaching hospital owned by University Kebangsaan Malaysia.²⁰ However it is said that for specialists & consultants more options are available as they are allowed to prescribe from both branded & generic drug list. In our case it seems that their preferences were more inclined towards the branded drugs.²¹ We have found an average hospital stay period of 2.5 days with mean number of drugs per patient 9.35 which is comparable to the results of Lucena.²² Polypharmacy is said to be associated with more adverse effects & less patient's compliance. Average cost of drugs per patient for a period of 2.5 days was found to be 1200 rupees that is per day 480 rupees. This didnot include the consultant's fee, investigation charges, hospital charges or even the food of the patient at the hospital. Pakistan is a third world country with per capita income of 7000 rupees/month declared in May 2012. One can very well imagine that even if a person is earning 1000 rupees per day that is a monthly income of 30,000 rupees will not be able to bear these drug expenses with the simultaneous responsibilities of the family, housing & food. Najmi²³ have documented an average cost of drugs per day to be 88.36 rupees & 80% of drugs use from NEDLP in 1988. But this was 23 years back & now prices of commodities are gone up by many fold.

Essential medicines are those that satisfy the priority health care needs of the population. They are selected with due regard to disease prevalence, evidence on efficacy and safety, and comparative cost-effectiveness. Essential medicines are intended to be available within the context of functioning health systems at all times in adequate amounts, in the appropriate dosage forms, with assured quality, and at a price the individual and the community can afford. We have found use of 25.83% drugs from National Essential Drug List of Pakistan (NEDLP). Antibiotics & analgesics were the most common drugs prescribed to 90.63% patients respectively & the most common route for their administration was intravenous. Vitamin injections were given to 18.75% patients. Our findings are coinciding with those of Litton who found 28.7 % of drugs used from the Ministry of Health Drug List & antibiotics the most commonly prescribed drugs.²⁴

Mengistu has documented in his study that significant number of files (case sheets) were incomplete for the route, dose, frequency, duration of drug use & discharge notes which completely favors our findings as none of our case sheets were complete for the above mentioned factors. Discharge notes were found in only 56.25% case sheets & that too were incomplete. These malpractices could result in administration of drugs through the wrong route, unwanted shorter or longer interval of drug administration & incorrect duration of treatment. We were not able to find why anti-ulcer drug injections were given to 84.38% & Ipratropium bromide nebulization to 34.38% patients when they didn't had any features of

peptic ulcer or bronchoconstriction. These might be used to satisfy the patients high expectancies when treated by specialist in a private set-up or to produce a feeling of well being within a short period. It is clear that treatment is not co-relating with the diagnosis in these patients or vice versa.

Educational, managerial & regulatory interventions to rationalize the prescribing practices are the need of today & should be carried out by the government authorities & professional bodies The important thing is the safety of an ill person which should not be compromised for the sake of personal or industrial growth.²⁵

CONCLUSION:

Audit of prescribing patterns in adult hospital inpatients of a private setup showed irrational use of drugs. Measures should be taken by the government & PMDC for:

1. Standardization of therapeutic schemes.
2. Prescription control sheet audits.
3. Improving the knowledge of doctors through specific trainings, printed educational materials, therapeutic manuals & guidelines.

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