Prescription pattern at outpatient department in a tertiary care hospital at central Maharashtra, India

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Abstract

Introduction: Drug utilization studies are powerful tools to ascertain the role of drug in society. They create a sound socio-medical and health economic basis for healthcare decision making. DUS are conducted to facilitate the rational use of drugs in populations. Therefore, the present study was undertaken to analyze the prescription written by doctors in a Tertiary Care teaching Hospital.

Materials and Methods: Present study was a cross sectional, prospective and observational study. The study was conducted in MGM Medical College & Research centre, Aurangabad from July 2018 to March 2019 for duration of 9 months. Data was obtained from 850 prescriptions. Data was analysed as per WHO prescribing indicators.

Result: Total 850 prescriptions were analysed, including 490 (57.6%) males and 360 (42.3%) females. The maximum numbers of prescriptions were from the age group of 18-40 (53.6%) years of age. Average number of drugs in the present study was found to be (3.1). Percentage of drugs prescribed by generic name is 16.0%. Percentage of encounters with an antibiotic prescribed was 59.1%. Percentage of encounters with an injection prescribed was 4.9%. Percentage of drugs prescribed from essential drugs list was 68.4 %.

Conclusion: There is need of improving the prescribing pattern by keeping the number of medicines as low as possible, prescribing medicines by generic names, using medicines appropriately after selecting and consciously keeping the cost of therapy low.

Keywords: Drug utilization studies, WHO prescribing Indicators, Essential drugs.

Introduction

Prescription is an art that when performed correctly will deliver the patient with all the goodies to relief him /her from ailments for which patient had appointment. Early medicines were made up of multiple ingredients requiring complex preparation.[1] Medical prescription is an important document of medico legal value too, that can be kept as evidence in medico legal cases in court of law and thus should be carefully and seriously considered.[2]

More than 50% of all medicines worldwide are prescribed, dispensed, or sold inappropriately and 50% of patients fail to take them correctly. Conversely, about one-third of the world's Population lacks access to essential medicines.[3]

The World Health Organization (WHO) defines drug utilization research as "the marketing, distribution, prescription and use of drugs in a society, with special emphasis on the resulting medical, social, and economic consequences."[4] The principal aim of drug utilization research is to facilitate the rational use of drugs in populations. For the individual patient, the rational use of a drug implies the prescription of a well-documented drug at an optimal dose, together with the correct information, at an affordable price. It is important to realize that inappropriate use of drugs represent a potential hazard to the patients and an unnecessary expense.[5]

Conducting periodic studies of pattern of drug use in various hospital settings or patient populations is therefore essential to critically analyse the current hospital drug policies and to make recommendations based on various guidelines to improve upon the current drug usage pattern in the future, if needed. This is more importantly required in resource poor countries like ours so as to ensure that the scarce resources are utilized in the best possible manner. Though there has been various drug utilization studies conducted on specific populations and in varied settings in India.[6]

The indicators of prescription in practice measure the performances of health care provider in several key dimensions related to appropriate use of drug.[7] Therefore, the present study was undertaken to analyze the prescriptions of patients attending OPD of a tertiary care teaching hospital.

Materials and Methods

Study Design

A prospective cross sectional observational study was carried out in the outpatient of department of MGM Hospital, a tertiary care teaching hospital, in Aurangabad. The study was started after approval from the institutional ethics committee and the hospital authorities.

Study Duration

The study was conducted in MGM Medical College & Research centre, Aurangabad from July 2018 to March 2019 for duration of 9 months.

Methods

The study included prescriptions collected randomly from all OPDs. Prescriptions were scanned for the record purpose. Data was obtained from 850 prescriptions. Basic demographic information in form of age, sex was recorded. Data was analyzed as per WHO prescribing indicators. These are as follows:

1. Average number of drugs per encounter was calculated by dividing the total number of different drugs

prescribed, by the number of encounters surveyed. It is not relevant whether the patient actually received the drugs.

2. Percentage of drugs prescribed by generic name was calculated by dividing the number of drugs prescribed by generic name by the total number of drugs prescribed, multiplied by 100.
3. Percentage of encounters with an antibiotic prescribed and Percentage of encounters with an injection prescribed were calculated by dividing the number of patient encounters during which an antibiotic or an injection are prescribed, by the total number of encounters surveyed, multiplied by 100.
4. Percentage of drugs prescribed from essential drugs list was calculated by dividing the number of products prescribed which are listed on the essential drugs list by the total number of products prescribed, multiplied by 100(WHO).[4]

For analysis of average number of drugs per encounter, combinations were considered as single drug and for the rest of indicators combination were split into individual drugs and counted separately. Abbreviation or short forms used by doctors were not considered as generic for example: (Paracetamol written as PCM). Multivitamin prescription was counted as one, for example B-complex.

Results
Gender Distribution
The gender ratio of the patient's male: female was found to be 1.3:1. Out of the 850 studied prescriptions, 57.6 % (490) of prescriptions were male and 42.3 % (360) of prescriptions were female. Test of proportion showed that the male prescriptions were slightly more than the female prescriptions (Table 1).

Table 1: Distribution of gender

Gender	No. of prescriptions	Percent
Male	490	57.6
Female	360	42.3

Age distribution: Test of proportion showed most of the Prescriptions was from age group 41-60 years (Table 2).

Table 2: Distribution of age group

Age group in years	No. of prescriptions	Percent
<18	52	6.1
18-40	458	53.8
41-60	297	34.9
61-80	43	5.0

WHO Prescribing Indicators
Total number of drugs prescribed in 850 prescriptions was 2635.
1. Average number of drugs per encounter was 3.1 which is a reflection of Poly pharmacy. This indicator shows that degree of Poly pharmacy is low in our institute.
2. Average number of drugs prescribed by Generic name was 16.0%. Out of 2635 drugs 422 drugs were

prescribed by generic name which can be increased by motivation of practitioners.
3. Only 42 prescriptions were found to have injections prescribed. Percentage of encounters with an injection prescribed was 4.9% which indicate judicious use of injections.
4. 503 out of 850 prescriptions were found to have an antibiotic prescribed (59.1%).
5. Out of total 2635 drugs, 1804 drugs were found from essential list of medicines i.e. 68.4% which increases rationality of the prescription. In our institute good numbers of practitioners are using drugs from essential list of medicines.

Tabular representation of the prescribing indicators is given in Table 3.

Table 3: Prescribing trend

Indicator	Result
Average number of drugs per encounter	3.1
Percentage of drugs prescribed by generic name	16.0 %
Percentage of encounters with an antibiotic prescribed	59.1 %
Percentage of encounters with an injection prescribed	4.9 %
Percentage of drugs prescribed from essential drugs list	68.4 %

Discussion
In our study, total 850 prescriptions were analysed, including 490 (57.6%) males and 360 (42.3%) females (Table 1). Whereas, the maximum numbers of prescriptions were from the age group of 18-40 (53.6%) years of age (Table 2).

Average number of drugs per encounter in the present study was found to be 3.1. Similar trends have been observed by Mittal et al (3.6).[8] Another study conducted by Geetah et al[3] in tertiary care hospital, Chennai reported 4.38 which are higher from our observation. Slightly lower results had been observed from a study[7] conducted in a rural hospital in Jalna i.e 2.82. Polypharmacy has a number of drawbacks like high health care costs and poor patient compliance, higher incidence of adverse events and drug-drug interactions. The risk of drug interaction increases from approximately 6% in patient taking two medication to 50% in those taking five medication to 100% in those taking 10 medication.[9] Hence, there is a continuous need to identify predictors of polypharmacy and bring amendments in prescribing practices.

Percentage of drug prescribed by generic name, in present study was 16.0%. Results of several other studies are 11.19% and 14.52% respectively.[3,7] In spite of various benefits like low cost of drug therapy, increased patient adherence and equivalent therapeutic benefits as brand name alternatives, generic prescribing is not a common practice in India. In a study conducted by Mittal et al, more than 75% prescriptions were by brand names.[8] A Encouraging prescriptions by generic names is always recommended by various national and international bodies to promote rational use of drugs.[10]

Antimicrobial resistance is a global problem and particularly pressing in developing countries where the infectious disease burden is high and cost constrains the replacement of older antibiotics with newer more expensive ones.[11] The result of the present study showed that the percentage of encounters with an antibiotic prescribed was found to be 59.1%. In several other studies, it was seen that percentage of encounters with antibiotic was 39% and 42.4%.[3,7] Avoidance of resistance and rationality can be improved by prescribing a least possible dose of antibiotics for the shortest possible duration with lowest economic consideration. Over or under the prescription of antibiotics may result in either treatment failure or side effects. [12]

In our study 4.9% of encounters had an injection prescribed which is lower than Bhatnagar T et al[13] (10%), Imran khan et al[7] (14%) and another study conducted by Manju Toppo[14] (14.10%). Geethat et al[3] reported 38 % and Mittal et al[8] 80% (mostly antibiotic) use of injectables. Injectable drugs are associated with problems of administration and medication errors. Hence, the need to switch over to other routes of administration as soon as possible needs to be emphasised.[8] Parenteral route (injection) should be used only when it is a must, otherwise it may become a vehicle for transmission of blood borne disease like Hepatitis B and C, HIV, Malaria etc. Also skilled person is required for such a route of administration of drug. Incidence of acute adverse drug reactions is more compared to oral route. It also increases the cost of therapy.[11]

WHO has defined "Essential medicines are those that satisfy the priority health care needs of the majority of population.[15] In the present study, results showed that the percentage of drugs prescribed from essential drug list was (68.4%), analysis was done with reference to Tripathi KD.[16] In other study conducted by B.K. Mohanty,[17] Geetha et al[3] and Imran Khan et al[7] results were 57.70%, 43.49% and 66.7% respectively which is lower than ours. Nazia. Y[18] and Mittal et al[8] reported that 77.61% and 78% drugs were from essential drug list which is higher than our results. The understanding of concept of essential medicines and their availability to different sections of society needs to be tested. A Prescription from the Essential drug list gives maximum benefit from limited resource, promotes rational use of drugs, assists the development of standard use of standard treatment protocol and rational prescribing policies and also increases economic advantages like lowering the cost of therapy.[11]

Conclusion

Studies on the drug utilization pattern are increasing tremendously due to irrationality in prescriptions. Thus, there is an ample scope of improving the prescribing pattern by keeping the number of medicines as low as possible, prescribing medicines by generic names, using medicines appropriately after selecting and consciously keeping the cost of therapy low. Medicines are different from other consumer products; therefore, they should be used carefully and rationally. Health professionals have a responsibility to ensure that the right drug is prescribed, dispensed and taken. Therapies need to be tailored to suit local experience, practice and requirements.

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