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Awareness amongst Physicians of a Tertiary Care Hospital Regarding Rational Use of Medicine

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ABSTRACT

Irrational use of medicine is the biggest problem in the health care system. All the stakeholders are equally responsible for irrational use of medicines. The current study was planned with this problem in mind finding out awareness regarding rational use of medicines among the physicians to find out drug prescribing patterns and to verify the quality of the prescriptions given to the patients. After Institutional Ethics Committee permission and after consenting the participants a pre-validated questionnaire was used for physicians and patients. Prescriptions of patients were photocopied. The study was conducted in the departments of dermatology, medicine or general OPD. The study duration was from June 2013 to April 2014 and a universal sampling was the technique used. The data was analyzed using descriptive statistics.

Result 70/105 physicians consented. The score for knowledge was 10.36 ± 1.96 . 73 % were for generic prescriptions. The score per physician for attitude and practice on Likert scale was 67.47 ± 5.75 . Fifty eight percent physicians mentioned they prescribe on diagnosis and first choice is preferred and 97% said FDCs are better for compliance. The average drugs prescribed per prescription was 3.545 ± 1.45 and legible were 32.37%. Non-pharmacological therapy mentioned in 11.87% and 54 % was complete in dose and duration. 40.64% of patients did not take the medications regularly, 95.57% said cost of medicines is the reason. 69% (120/174) purchased economical alternatives without informing the doctor. The awareness regarding RUM in physicians is low, cost of medicines deter patients from taking medicines regularly.

Keywords: Patient's adherence, Non-compliance, Cost, Prospective, Cross sectional, Observational.

INTRODUCTION

Rational Use of Medicines (RUM) requires that “Patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements, for an adequate period of time, and at the lowest cost to them and their community” [1,2]. This concept stem up during a WHO conference on rational use of drugs held in Nairobi in 19852 wherein irrational prescribing was considered as a global problem. Twenty nine years down the line despite various strategies implemented to promote RUM, irrational and inappropriate use of drug persists to be a major problem in medical practice as pointed out by the study published in 2013 [3]. Despite various strategies implemented to promote RUM, irrational use of drug persists to be a major problem in medical practice. To find out how existing medical practice and prescribing trend are at our institute, we planned a study to assess the use of medicine in our tertiary care hospital. The objective of our study was to determine the awareness amongst physicians regarding Rational Use of Medicines (RUM). To support this data, we also wanted to determine quality of prescription given by physicians in terms of legibility, layout of prescriptions and WHO prescribing indicators. As affordability of patient is one of the components of rational use of medicine, we tried to find out the awareness of the physicians toward the concept of pharmacoeconomics. To corroborate all these, we also planned to determine patient adherence to prescriptions and reasons for non-adherence, if any [4].

MATERIALS AND METHODS

Thus the primary objective of the study was to detect awareness amongst newly graduated physicians regarding the Rational Use of Medicines (RUM) and pharmacoeconomics. The secondary objectives were to find out drug prescribing patterns of these physicians and to verify the quality of the prescriptions given by treating physicians in the terms of adequacy, legibility and layout of prescriptions and to find out patients’ adherence to the therapy and reasons for noncompliance.

Study setting

The study was conducted in a tertiary care hospital of a metro city.

Study design

Prospective cross-sectional, observational, descriptive study.

Ethical considerations

Approval of Institutional Ethics Committee for Research on Human Subjects (Committee for Academic Research Ethics) of tertiary care hospital was obtained for the study (Ethics Committee no: EC/97/2012). Permission was also sought from the IEC to interact with the patients of the enrolled physicians (2-5 patients/physician) to photocopy their prescriptions and to administer them a questionnaire. The confidentiality of the data obtained from the questionnaires and the prescriptions was maintained [5].

Study population

Newly graduated physicians practicing in the dermatology, medicine and at general practitioner OPD of a tertiary care public hospital. The 2-5 patients of each physician were given a questionnaire and their prescriptions reviewed.

Sample size calculation

It was decided to include all the newly graduated physicians practicing in the departments of dermatology, medicine and general practitioner OPD of the tertiary care hospital who are willing to participate. As the study was of exploratory nature and as it was decided to include the entire population at the site, no sample size calculation was done.

Sampling technique

Convenient sampling.

Selection of study subjects

A. Physicians were enrolled in this study if they fulfilled the following selection criteria.

Inclusion criteria: Newly graduated physicians (up to 5 years of graduation) practicing in the departments of either dermatology, medicine or general OPD and with either gender from any age group, Who were willing to give written consent to participate in the study.

Exclusion criteria: Physicians who are having MBBS degree but not likely to diagnose and treat psoriasis.

B. For the enrollment of patients treated by the selected physicians following were the selection criteria.

Inclusion criteria: Patients taking treatment from the physicians as well as dermatologists already enrolled for this study. Willing to give written consent to review their prescriptions and able to fill up the questionnaires on their own.

Exclusion criteria: Mentally challenged patients, patients admitted in the hospital, children less than 18 years of age.

Data collection methods

Data collection was done prospectively. Information was collected from the dermatologists and physician by administering them a questionnaire. To verify their prescription practices (prescribing pattern and quality of prescription), their prescriptions written for at least 2-5 patients were studied. In addition, the patients were also administered a questionnaire.

Data collection tool

A questionnaire was used for recording knowledge, attitude and practice of the physicians related to rational use of medicines and pharmaco-economics. It had domains which included knowledge (17 items), attitude and practice (26 items). Twenty one items related to attitude and practices were on the likert scale. The questions were in the form of Multiple Choice Questions (MCQs), statements with 5 point Likert's scale (1= never and 5=always) and case based scenario followed by questions. The questions tested knowledge about essential drug list, recent version of WHO and national essential drug list, approved fixed drug combinations listed in WHO as well as Indian Essential Medicinal List (EML), definition of rational use of medicine, 'p-drugs' concept [6].

To find out the pattern of the prescriptions, questions related to the preference towards prescribing branded drugs or generic versions, old or new drugs, questions related to STEP (Suitability, Tolerability, Efficacy, Price) criteria for prescribing a particular medicine, the source of drug information were asked.

Case base scenario was given to find out the use of pharmaco-economics principles by physicians in their practice. This questionnaire was designed based on literature search and its content validation was done by expert opinions from subject experts and those from Community Medicine and a social scientist [7]. One descriptive question was asked related to the FDCs (Fixed Drug Combinations) where the content of FDCs was asked.

The patient-questionnaire had 11 close-ended items in form of statements pertaining to the legibility of the prescription (n=5), the treatment satisfaction, (n=1), instruction about next visit (n=1) and the cost of the therapy (n=4). The questionnaire was also validated by above-

mentioned group of experts.

Variables

Physicians' knowledge, attitude, practice: Percentage of physicians giving correct response, Average score attained for knowledge related items, percentage of physicians following the practice as per statements given, percentage of physicians who check availability of drugs in the hospital pharmacy, percentage of physicians who check affordability of patients, pharmacoconomics.

For prescription analysis: Average number of drugs prescribed to the patients, percentage of drugs prescribed from the National Essential Drug List, percentage of the drugs prescribed by generic name, percentage of the drugs prescribed by brand name, percentage of antibiotics prescribed, percentage of injections prescribed, percentage of legible prescriptions, percentage of complete prescriptions with respect to dose and duration, percentage of prescriptions mentioning quantity of medicines to be dispensed, percentage of prescriptions mentioning non pharmacological therapy (special instructions) [8-10].

Patients' responses: Percentage of patients adhering to drug therapy, reasons for non-compliance, percentage of patients aware of cheaper alternatives of the prescribed drug, percentage of patients purchasing economical alternatives without physician's knowledge.

Study procedure

Written informed consent was obtained from the physicians, following which they were administered the questionnaire. Written informed consents were also obtained from the patients for whom the participated physicians had written a prescription. At least 2-5 patients prescriptions per physician were photocopied and analyzed later. The patients were also administered questionnaire. Responses of physicians and patients were analyzed.

Statistical analysis

The data was entered into the computer using Microsoft excel 2013. Data was analyzed to measure WHO prescribing indicators 4,5 using descriptive statistics. Prescribing indicators were presented as percentages per prescription. The rest of the data was analyzed and the results were expressed in terms of the mean \pm SD and percentages and presented using tables.

RESULTS

Participants' selection was done from June 2013 to April 2014 (11 months) in a Tertiary Care Public Hospital. Of the 105 physicians approached, 70 consented and gave written informed consent. The mean age was found to be 26.8 ± 1.15 years. Male to female ratio was 2:1. Mean number of patients treated/day was 28.8 ± 6.4 per physician.

Physicians' knowledge, attitude, practice

None of the 70 physicians could answer all the questions related to knowledge correctly. The average score for knowledge related items was 10.36 ± 1.96 (out of 17). Though 96% claimed that they were aware of terms "RUM" and "Essential drugs", only 3% could explain the meaning of "RUM" and 69% of "Essential drugs". "P" drug concept was known to 25.71%. Preference towards prescribing generic drugs was given by 72.85 % physicians and towards new drugs by 34.28% physicians. The sources of drug information were not selected correctly by 20% for low cost medicine, 77.14% for rational fixed dose drug combinations and 48.57% for medicines banned in India. Only 51% mentioned that they refer to National essential medicine list.

There were 4 questions related to STEP (Suitability, Tolerability, Efficacy, and Price) criteria for prescribing a particular medicine. The

question to the STEP criterion for selecting doxycycline for renal failure patient was correctly answered by 51.42% (36 out of 70), while drug of choice in specialized condition like pregnancy was answered correctly by 64.29% (45 out of 70). The correct answer given to the rheumatoid arthritis case was 63% while the sub-question related to the consideration of STEP criterion while selecting a drug for the above patient was answered correctly by 45.71% (32 out of 70). The question related to the efficacious drug for typhoid fever was answered correctly by 50% (35 out of 70 physicians).

The answer to the case base scenario, which was related to pharmacoeconomics was answered correctly by 68.57% (48 /70) physicians and of these 33 have given appropriate reasoning for the same. The question related to costly and more efficacious drug was not attempted by 51 physicians. This question was correctly answered by 12 with appropriate reasoning. One descriptive question related to the fixed drug combinations was attempted by only 21.43% (15/70) of physicians and 11.42% (8/70) of physicians had given the examples of FDCs as per WHO as well as Indian Essential Medicinal List (EML). The average score per physician for attitude and practice related items on Likert scale was 67.47 ± 5.75 (out of 105 for 21 items). Thus for each item on Likert scale, the average score per physician was 3.21 ± 0.27 .

Fifty eight percent physicians mentioned that they always prescribe based on diagnosis, 65.71 % physicians said that most of the time they prescribed essential medicine, 72.82% said they prescribe drug of first choice as mentioned in the textbooks but only 8.57% physicians were found to check availability of drugs in the hospital pharmacy regularly while 14.28% physicians checked affordability of patients. Ninety seven percent felt that compared to single drugs, FDCs were better in terms of compliance. On the other hand, 27% felt that the FDCs were inferior in terms of effectiveness and 57% felt they were rarely better than single drug in terms of adverse drug reaction (Table 1).

Attitude and Practice	Always	Most of the time	Sometime	Rarely	Never
How often do you prescribe					
An essential medicine	21(30%)	46(65.71%)	2(2.8%)	1(1.4%)	0
Based on diagnosis	40(58.82%)	26(38.2%)	2(2.94%)	0	0
The drug of first choice mentioned in the text book	2(2.8%)	51 (72.82%)	17(72.82%)	0	0
Availability in your institution/nearby chemist	6(8.57%)	39 (55.71%)	25 (35.72%)	0	0
Affordability by the patient	10(14.28%)	50 (71.42%)	10 (14.28%)	0	0
Do you feel FDC is better than single drug in terms of					
	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
Compliance	35(50%)	33(47.14%)	1(1.42%)	1(1.42%)	0
Effectiveness	2(2.85%)	28(40%)	21(30%)	18(25.71%)	1(1.42%)
ADR	2(2.85%)	8(11.43%)	20(28.57%)	34(48.57%)	6(8.57%)

Table 1: Findings related to prescribing practice and reasons for preference to fixed dose combinations.

Prescription analysis

Of the 385 patients, 278 patients consented and therefore, total number of prescriptions analyzed were 278. The average number of drugs prescribed per prescription was 3.545 ± 1.45 . The drugs prescribed by generic name were 43.18% (424/982). Percentage of antibiotics prescribed per prescription was 20.57% (202/982) and injections were 0.61%. (6/982). Percentage of legible prescriptions was 32.37%.

53.59% (149/278) prescriptions were found complete with respect to dose and duration. It was found that the dose was mentioned only in 53.59% of prescriptions (149 out of 278) and legible writing to read the dose was in 92.61% (138 /149). Unit of dose was mentioned in 19% (53 of 278) and legible in 81.13% (43/53). Duration was mentioned in 83.81% (233 of 278) but legible was in 83.69% (195/233). Quantity of medicines to be dispensed was mentioned only in 1.79% (5 of 278). Non-pharmacological therapy was mentioned only in 11.87% (33 of 278) and signature of prescriber was present only in 75.53% (210 out of 278). Percentage of prescriptions mentioning non- pharmacological therapy (special instructions) were 11.87 (n=33).

Patient responses

While answering the questionnaire 40.64% of patients admitted that they did not take the prescribed medications regularly. When asked the reasons for the same, 95.57% of them mentioned that the cost of the medicines is the main factor. Other reasons were non-availability of time to consume the medicines (3.53%) and inconvenience of carrying medicines (0.88%).The patients (62.58%; 174/278) informed that they were aware of cheaper alternatives of the prescribed drug. Of these patients, 31.03% (54 /174) said they still preferred taking costly medicines prescribed by the physician but 68.96 % (120/174) said they purchased economical alternatives without informing the prescribing doctor. Only 43.1% patients understood in what does the prescribed medications should be consumed.

DISCUSSION

Rational prescribing involves not only selection of right drug in ready to use manner but also to write prescription in legible manner and communicate the same to the patient. Rational prescribing is a skill and it should be inculcated in the formative years before irrational prescribing becomes a habit. Hence it was of interest to find out the awareness amongst newly graduated physicians regarding the rational use of medicines and pharmacoeconomics.

It was decided to select those who are working in the department of Dermatology, department of Medicine and in General OPD of tertiary care hospital. The study was mainly the questionnaire based survey but it was decided to verify the responses by observing the prescribing pattern of these physicians and hence the prescriptions of the patients prescribed by them were also studied. The quality of their prescriptions was also determined. While checking the awareness towards rational use of medicines and pharmacoeconomics, two types of questions were asked, one set related to knowledge and other related to attitude and practice.

As seen from the results, the physicians' knowledge score was 10.36 ± 1.96 , almost 61% of total score. However, though they did not know the correct answers, based on their undergraduate knowledge they were familiar with certain terminologies. None of the physicians was found to practice rational prescribing regularly or could have optimal attitude towards such practice. The average response on Likert scale was between 3 and 4. This indicated that they needed some motivation to practice rational prescribing. In our set up, there is a scarcity of regular programmers on rational use of medicines and even if they are held, usually physicians cannot attend due to their busy practice. It is necessary to hold such CMEs either at the level of the department or the institution so that practice of rational prescribing can be followed.

Physicians also committed that they did not regularly enquire about the availability of medicines in the hospital pharmacy or check patient affordability of the drugs that they prescribed. Only half of them referred to National essential medicine list. Nonadherence to this list and of EDL for hospital must have led to prescribing multiple expensive drugs. Such type of prescribing practice can lead to non-compliance, drug resistance, treatment failure and unnecessary disease burden on the patients. similarly, the drugs from the EDL should be made available in hospital pharmacy.

The prescription analysis done using prescribing indicators set by WHO showed the inadequacies in prescriptions. The findings were consistent with our own findings of Study 1 and with similar studies conducted in India. This points out again towards a need of an

educational intervention. But most important features in the present study were missing units of the doses, non-legibility of prescription and missing signature of the physicians. Prescription is a legal document and such casual attitude while writing prescriptions is not acceptable.

Average number of drugs per encounter is an important index of RUM in prescribing practices. It was also found from the patients' Responses that the non-compliance stems from such polytherapy. The cost was the major reason for non-compliance (95.57%). The others were non-availability of time to consume drugs and inconvenience to carry medicines. The study setting was a public hospital, where drugs are provide to the patients free of cost but still the majority of patients expressed cost as the major factor. This is because the drugs are not available all the time in the hospital pharmacy.

In the study done in our institute, it has been detected for checking the prescriptions for patients with psoriasis. In addition, many physicians prescribed branded medicines against the policy of the hospital. In India only 437,457 persons are medically insured, majority are spending out of their own pocket. It has been shown that medical cost has led to economical burden on many of the families. As 70% of our population is below poverty line, hence financial considerations should be at the core while prescribing drugs to Indian population.

Another issue that stemmed from this was few patients (62.58%) were aware of cheaper alternatives of the prescribed drug and nearly (68.96 %) purchased economical alternatives without informing the prescribing doctor. This amounts to self-medication, which has hazardous implications. Poor legibility in terms of dose and unit of dose in the prescription has led to lack of understanding by the patient regarding what dose of medication has to be consumed. This can lead to treatment failure or overdose of the medication. In 2014 prescription guidelines mention that a prescription drug has to be written in capitals to avoid consequences.

CONCLUSION

This study has highlighted Poor knowledge and awareness about RUM as reflected in the practice of young physicians. The glaring deficiencies were irrational prescribing habits without checking availability and affordability of patients, lack of knowledge regarding choices for drug information sources, and incomplete, inadequate, illegible prescriptions. This has resulted in non-adherence to prescriptions by patients. This study suggests that prescribing skill training programme is needed to enhance the prescribing competency of the newly graduated doctors. Perhaps the sensitization towards RUM should be started in the early years of medical education. A system to assess their prescribing competency before giving them permission to practice should be developed at the level of University or Medical Council of India (MCI). Poor knowledge and awareness about RUM has reflected in the practice of young physicians as seen from the present study.

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