ISSN (Online) 2249-6084 (Print) 2250-1029

International Journal of Pharmaceutical and Phytopharmacological Research (eIJPPR)
[Impact Factor – 0.7826]

Journal Homepage: www.eijppr.com

Research Article

A Questionnaire Study to Evaluate the Awareness and Knowledge about Rational Use of Medicines among Trainee Medical Graduates in a Tertiary Care Centre

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Article info

Article History:
Received 24 October 2013
Accepted 30 December 2013

Keywords:
Rational use of medicines, Essential medicines, Essential drug list, P drug, Medical graduate trainees

Abstract

Rational use of medicines (RUM) has been promoted by WHO since 1970, in-order to provide equal access to basic health services globally. Hence we conducted a study in our institute to assess the knowledge regarding the concept of RUM among the medical graduate trainees. 103 participants were given a pretested questionnaire to assess their awareness and knowledge regarding the concept of RUM. Out of 103 participants, 39 were interns, 46 were postgraduates and 18 were pursuing their DM/Mch in various fields. All the postgraduate students and superspeciality trainees were aware of RUM, whereas it was only 84% among the interns. Practice of RUM was maximum in the superspeciality group, where 88% of them claimed to prescribe rationally always. 25% of interns, 45% of postgraduates and 66% of the superspecialty group medical graduates prescribed drugs from National List of Essential Medicines of India. 22% of the superspecialty group medical graduates claimed to have prepared P-drug list. Practice of RUM was significantly more in the participants more than 30years of age, with a postgraduate degree and those with more than 5 years of clinical experience. Though the awareness of RUM among medical graduate trainees is satisfactory, there is a lag in their implementation. Incorporation of these concepts in the medical training at undergraduate and postgraduate levels may promote their awareness and implementation.

1. INTRODUCTION

Rational use of medicines (RUM) is recognised as an important factor in health policy. 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].WHO estimates that more than half of all medicines are prescribed, dispensed or sold inappropriately, and that half of all patients fail to take them correctly[1]. The overuse, underuse or misuse of medicines results in wastage of scarce resources and widespread health hazards[1].

WHO established essential medicine list (EML) in 1977 as a major step towards promoting RUM. Essential medicines are those that satisfy the priority health care needs of the population[2]. They 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[2]. The EML established by WHO assists countries in formulating their own national list[3]. National lists of essential medicines usually relate closely to national guidelines for clinical health care practice and national policies[2]. The first National list of essential medicine (NLEM) of India was released in 1996. The latest version of NLEM was released in 2011 which contains 348 medicines[4]. About one-third of the world's population is known to lack access to essential medicines (EM)[5]. Hence, it becomes essential to successfully implement EML for easier procurement, storage and distribution of medicines. It is also known to improve prescribing and dispensing practices as fewer items are present in the list[5].

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The concept of P-drug was introduced recently to rationalise the drug use further. P drugs will differ from country to country and between doctors, because of varying availability and cost of drugs, different national formularies and essential drugs lists, medical culture, and individual interpretation of information. P drugs should be selected from NLEM as they will be based on good scientific evidence and consensus between experts[6]. By using P drugs regularly, the physician will get to know their effects and side effects thoroughly, with obvious benefits to the patient[6].

Educational interventions like seminars, workshops and CMEs are known to improve the awareness about RUM among both prescribers and consumers. In India, RUM including concepts of EM and P drugs are not included in detail in the undergraduate curriculum. Problem based pharmacotherapy is also lacking in the curriculum. Regular educational programmes to sensitise the prescribers to these concepts are also minimal in India.

A study by Mahajan R et al[7] showed lack of knowledge about P-drug concept and EM among working physicians. Hence, the present study was designed to evaluate the awareness and knowledge about these concepts in trainee medical graduates in a tertiary care centre. The results of this study will help us to understand the level of knowledge of the trainee medical graduates in our centre, so that more interventions can be planned for them during training period.

2. MATERIALS AND METHODS

After taking the written informed consent, 103 trainee medical graduates from different disciplines were given a pre-tested questionnaire to be filled. All trainee medical graduates with valid degrees (MBBS, MS/MD/diplomas, DM/Mch) and those giving written informed consent were included in the study. The questionnaire was divided into 3 parts, first part dealt with the demographics of the medical graduate trainees and their orientation to research, second part assessed their awareness and knowledge

regarding RUM, EM and P-drug concept and the third part evaluated their prescription practice.
The details of the questionnaire are given in Table 1.

Table 1: Questionnaire

Part 1	
Age	
Sex	
Educational Qualification	
Clinical experience (in Years)	
Number of Journals subscribed till now	
Number of Conferences attended till now	
Number of Articles presented till now	
Number of Articles published till now	
Part 2	
Are you aware of the term rational use of medicines	yes/no
What is rational use of medicines	definition
Do you always prescribe rationally	yes/no
Are you aware of the term Essential medicines	yes/no
Do you always prescribe from the essential drug list of India	yes/no
Are you aware of the term P-drug	yes/no
Define P-drug	definition
Have you prepared P-drug list at work	yes/no
Part 3	
Do you take care to write all the parts of prescription	yes/no
Do you check for full information about the drugs before prescribing	yes/no
Do you give full information about Adverse effects to your patients	yes/no

At the end of the study, all the data was pooled and the results were analyzed in percentage and averages. Significance was assessed at 5 % level of significance. Student t test has been used to find the significance of study parameters.

3. RESULTS AND DISCUSSION

Out of 103 participants, 39 were interns, 46 were post graduates and 18 were pursuing their DM/Mch in various fields. Males were 56.3% and females 43.7%. The age of the study participants ranged from 23 to 41 years.

Table 2: Research orientation of all the participants

Statement /question	**Responses (n=average number per participant)**
Journal subscribed	0.24
Conferences attended	6.5
Articles presented	2.3
Articles published	0.84

Table 3: Responses to questions regarding awareness of RUM, EM and P-drug concept

Questions	***Responses as yes- n (%)**		
	MBBS(n=39) Interns group	**MD/MS(n=46) Post graduates group**	**DM/Mch(n=18) Superspeciality group**
Are you aware of the term rational use of medicines	33(84%)	46(100%)	18(100%)
What is rational use of medicines (correct definition)	12(30%)	23(50%)	16(88%)
Do you always prescribe rationally	28(71%)	32(69%)	16(88%)
Are you aware of the term Essential medicines	31(79%)	35(89%)	16(88%)
Do you always prescribe from the essential drug list of India	10(25%)	21(45%)	12(66%)
Are you aware of the term P-drug	8(25%)	18(46%)	16(88%)
Define P-drug (correct definition)	8(25%)	16(41%)	10(55%)
Have you prepared P-drug list at work	0(0%)	0(0%)	4(22%)

**Responses given as n (%) =number of participants responding as yes (Percentage of participants responding as yes in that group)*

84% of the trainee doctors in interns group were aware of the term RUM, but all the participants in postgraduate and super-speciality group were aware of the same. 30% of interns, 50% of postgraduates and 88% of the super-specialty group medical graduates could actually define the term RUM correctly. 71% of interns, 69% of postgraduates and 88% of the superspeciality group medical graduates claimed to practice rationally.
79% of interns, 89% of postgraduates and 88% of the superspeciality group medical graduates were aware of the term EM. 25% of interns, 45% of postgraduates and 66% of the superspeciality group medical graduates prescribed drugs from NLEM of India.
25% of interns, 46% of postgraduates and 88% of the superspeciality group medical graduates were aware of the term P drugs. Only 25% of interns, 41% of postgraduates and 55% of the superspeciality group medical graduates could define the same correctly. Only 22% of the superspeciality group medical graduates claimed to have prepared P-drug list.

Table 4: Responses to questions regarding prescription practice

Questions	***Responses as yes n (%)**		
	MBBS (n=39) Interns group	**MD/MS (n=46) Post graduates group**	**DM / Mch(n=18) Superspecialit y group**
Do you take care to write all the parts of prescription	15(38%)	22(47%)	14(77%)
Do you check for full information about the drugs before prescribing	6(15%)	13(28%)	12(66%)
Do you give full information about adverse effects to your patients	8(25%)	12(26%)	11(61%)

**Responses given as n (%) =number of participants responding as yes (Percentage of participants responding as yes in that group)*

38% of interns, 47% of postgraduates and 77% of the superspeciality group medical graduates claimed to take care to write all the parts of prescription at work. 15% of interns, 28% of postgraduates and 66% of the superspeciality group medical graduates checked for full drug information before prescribing. 25% of interns, 26% of postgraduates and 61% of the superspeciality group medical graduates provided information about adverse effects to their patients.

Table 5: Factors affecting Awareness and practice of RUM

Variables	**Awareness of RUM n (%)**	**Practice of RUM n (%)**
Age		
<30years (n=65)	45 (69%)	13(20%)
>30years (n=38)	26(68%)	25(65%)
Educational qualification		
MBBS n=39	28(71%)	6(15%)
MD/MS n=46	30(65%)	19(41%)
DM/Mch n=18	13(72%)	13(72%)
Clinical experience		
<5years n=65	43(66%)	13(20%)
>5years n=38	28(73%)	25(65%)

**Responses given as n(%)=number of participants responding as yes (percentage of participants responding as yes in that group)*

Awareness about RUM was not affected by age of the participants, but the practice of RUM is significantly better in participants who were >30years old ($p<0.05$).

Awareness about RUM was not affected by educational qualification of the participants, but the practice of RUM was significantly better in participants with super-speciality group compared to postgraduate group ($p<0.05$) and interns group ($p<0.05$).

Awareness about RUM was not affected by clinical experience of the participants, but the practice of RUM was significantly better in participants with clinical experience more than 5years ($p<0.05$).

Many studies have been conducted earlier to evaluate the knowledge about RUM among students and working physicians. The same concepts have not been assessed in trainee medical graduates. Hence this study was designed, as the results of this study would guide us in training them better in our institute.

The awareness about RUM was satisfactory in all the groups of trainee medical graduates. But, majority of the interns and postgraduates could not define the term RUM correctly. This indicates the lack of clear understanding of this concept which could be due to lack of problem-based learning in the curriculum. Frequent exposure to CMEs and conferences could have helped the super-speciality group to understand these concepts better. Growing consumer awareness about the drugs at present has increased the importance of RUM in terms of medical, socio-economical and legal aspects which also might have improved the awareness in superspeciality group[8].

Though the concept of EM is old, it has not been taught in detail in undergraduate MBBS programme. Hence, all the participants were aware of EM. But, the practice of EM was significantly low in interns group. This could be due to non-availability of EML/NLEM at work, lack of regional standard treatment guidelines and availability of large number of drugs in the market. Supply of EM based on standard treatment guidelines in Delhi, led to 30% fall in expenditure and increased the availability of drugs by 80% at health care facilities[9]. Implementation of these concepts in India is important as larger population do not have any access to the basic drugs. A prescription audit conducted in the same institute showed that 96% of the drugs prescribed were from EML[10].

P-drug concept also is introduced as one step towards promoting RUM. It includes drug treatment of first choice to a clinical condition with its strength, dosage forms, and duration of treatment, necessary warnings and information to the patients. The present study showed awareness and practice of P-drug concept is significantly low in interns group. None in the interns and postgraduate group had made an attempt to prepare their P-drug list at work. Though WHO has released a guide to choose P-drug, it has not been dealt in detail in the undergraduate or postgraduate curriculum[11]. Hence its awareness and implementation is low in all the groups.

The average number of conferences attended was satisfactory among trainee medical graduates, but the articles published were minimal. This indicates the lack of interest in research activities, though it is mandatory for the Postgraduates and the superspeciality trainees to perform a research project during their training. Similar results were seen in the study conducted by Mahajan R et al[7] in North India. It should also be made compulsory for all the medical trainees to present/publish research projects in their training period. This in-turn would improve their knowledge about good prescribing habits.

Majority of participants in the superspeciality group took care to write all the parts of prescription, had full knowledge of the prescribed drugs and also provided information about adverse effects to the patients compared to other two groups. Lack of information about drugs and poor communication between prescriber and the patient have been identified as common factors for irrational use of drugs[8]. Hence, all the trainee doctors should be provided problem based training to understand and implement these concepts. There should also be a drug information centre to provide unbiased information about the drugs to both prescribers and patients. The hospital formulary with full information about drugs should also be available for all the prescribers.

The trainee medical graduates above 30years, with a post graduate degree and more than 5 years of clinical experience were significantly better in implementing the concepts of RUM, EM and P drugs in their clinical practice. This shows that the concepts of RUM should be dealt throughout medical training period. Problem based learning should be given importance for better understanding and application of these concepts. Interns and postgraduates should be encouraged to attend CMEs and conferences. It should also be made mandatory to publish their research projects. Establishment of Drugs and therapeutics committee and drug information centre at our institution may help to promote RUM among prescribers.

4. CONCLUSION

In conclusion, awareness about RUM is satisfactory among trainee medical graduates. Implementation of these concepts in practice is lacking among junior trainees. These concepts should be incorporated in the undergraduate and postgraduate curriculum. Educational interventions to promote RUM should be organized regularly to promote implementation of these concepts.

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