 DOI: 10.18231/2393-9087.2017.0015

Impact of educational intervention on knowledge and attitude about rational use of medicine among doctors doing internship

CS Bajait[1], VM Motghare[2,*], MV Kalikar[3], GN Dakhale[4], AS Jire[5]

[1]Assistant Professor, [2]Professor & HOD, [3]Associate Professor, [4]Professor, [5]Junior Resident, Dept. of Pharmacology, Govt. Medical College, Nagpur, Maharashtra

***Corresponding Author:**
Email: vm.motghare@gmail.com

Abstract

Introduction: Rational use of medicine(RUM) include prescribing correct medication, dose, duration of treatment at correct cost. Intern doctors are most prone to prescribing errors, yet are expected to perform a significant prescribing role. So present study was planned to assess the impact of educational intervention on knowledge and attitude of interns about RUM.

Material and Method: A prospective, interventional study conducted at tertiary care teaching hospital in 48 interns. Self-developed, prevalidated questionnaire was used to obtain information about various issues concerned with RUM before and after educational intervention.

Results: Statistically significant differences were found between pretest and post-test regarding knowledge about EM, RUM, p-drug and STEP criteria. There were significant change in attitude also toward RUM. Statistically more number of interns preferred generic name and also old drug for prescribing in post test.

Conclusion: Educational intervention played a significant role in improving knowledge and attitude of intern doctors about RUM.

Keywords: RUM, p-drug, Essential medicine, Interns, STEP criteria

Key Message: Educational intervention significantly improve knowledge and attitude of intern doctors about RUM.

Introduction

Rational use of medicine (RUM) is an important part of health policy. World Health Organization (WHO) define RUM as – "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." This definition focuses on four important aspects of the RUM: correct medication, correct dose, correct duration of treatment and correct cost.[(1)] Efforts to promote RUM started back in the 1970s, when WHO introduced the concept of essential medicine (EM). The principle of the concept is that a limited number of drugs would lead to a better supply of drugs and better treatment at lower cost.[(2)] The Ministry of Health, Government of India revised the National List of EMs of India (NLEMI 2011) in June 2011. The NLEMI 2011 contains 348 medicines.[(3)] Use of EMLs for prescribing improves quality of health care delivery with better cost-benefit ratio when combined with proper procurement policies.[(4)] Prescribing medication to a patient is a continuous process which involve proper diagnosis, selection of drug, monitoring, and modification of therapy if needed based on scientific evidences. So it require knowledge of EM, RUM and personal drug (p-drug).[(5)] WHO has published the Guide to Good Prescribing, which explain how to choose and prescribe suitable drug based on efficacy, safety, suitability, and cost for an individual patient, i.e., P-drug concept.[(1,6)]

During internship, most medical students don't have a very clear idea about how to choose a drug for their patients or what information they need to provide.[(4)] At the same time medical representatives (MR) try to influence their prescribing habits using various marketing strategies like offering free samples, gifts, medical literature etc. So prescribing errors are common in intern doctors which may be unintentional due to inadequate training.[(7,8)] It is thus logical to assume that our efforts to promote RUM should also begin at this stage so that we can change their attitude toward good prescribing and RUM.[(7,8)]

Education with its various approaches has an important role to play in promoting the RUM. Various studies have been conducted to assess improvement in prescribing competency by employing a wide variety of educational interventions with different outcome measures and methods of assessment in different target population.[(9,10,11)]

Lots of studies had been conducted to assess improvement in prescribing competency through various educational interventions. But their study designs and outcome measures were different so it is quite difficult to generalize their conclusions. With this background, present study was planned to assess the impact of educational intervention on knowledge and attitude about RUM among doctors doing internship at tertiary care teaching hospital.

Material and Method

Present study was a prospective, interventional study conducted at tertiary care teaching hospital after obtaining approval from institutional Ethics Committee.(Approval No.871EC/Pharmac/GMC/NGP)

Total 48 intern doctors were included with prior informed consent. Questionnaire was used to obtain information about various aspects of RUM like EM, p-drug, brand or generic drug, sources of drug information etc. after explaining study objectives. Participants were asked to fill the same questionnaire before and after educational intervention in the form of power point presentation for 1 hr on concept of EM, RUM and how to choose p-drug, based on the WHO Guide to Good Prescribing model followed by group discussion.

Statistical analysis: Data was expressed as counts and percentage wherever applicable. Statistical comparison of data between pretest and post-test was done by Chi square test using Graph Pad prism 5.0 and p value less than 0.05 was considered statistically significant.

Results

48 interns participated in the study with mean age of 23.69 ± 1.04 yrs and M:F ratio was 29:19. Statistically highly significant difference were found between pretest and post-test regarding knowledge about EM, RUM, p-drug and STEP criteria. [Table 1] There was significant change in attitude toward RUM after educational intervention among interns. After power point presentation, statistically more number of interns preferred generic name and also old drug for prescribing. [Table 2]. Table 3 shows advantages of practicing RUM as reported by participants. Fig. 1 shows various sources of drug information preferred by intern doctors.

Table 1: Awareness about various aspects of RUM among participants. (N= 48)

	Questions	Pretest	Post-test
1	Aware about EM	21	48**
2	Aware about No of drugs in NLEMI 2011	0	33***
3	Aware about the term RUM	32	46*
4	Aware about the term p-drug	12	47**
5	Aware about STEP criteria	5	45***
6	Aware about parts of prscription	15	34**

*P<0.05; ** p< 0.01; p< 0.001; EM: Essential Medicine; RUM: Rational use of medicine; NLEMI: National list of Essential medicine of India

Table 2: Attitude of participants regarding rum (n= 48)

	Question/Statement	Pretest	Post-test
1	Prescribing EM is necessary	28	43*
2	Clinician should be aware about ingredients of prescribed drugs	30	42*
3	Clinician should inform the patient regarding disease, drug therapy, regular follow-up and monitoring	36	48*
4	Preference for writing name of drug		
	Brand / Trade name	22	2
	Generic name	14	41
	Both	11	5
5	Preference for prescribing		
	New drug	26	4
	Old drug	9	21
	Both	13	23

*P<0.05; EM: Essential Medicine

Table 3: Advantages of practicing RUM (n= 48)

Advantages	Pretest	Post-test
Minimize ADR	4	5
Avoid development of resistance	5	6
More safer	0	7
Cost-effective	0	6
Proper treatment	4	4
Improve availability of drugs	0	4

RUM: Rational use of medicine

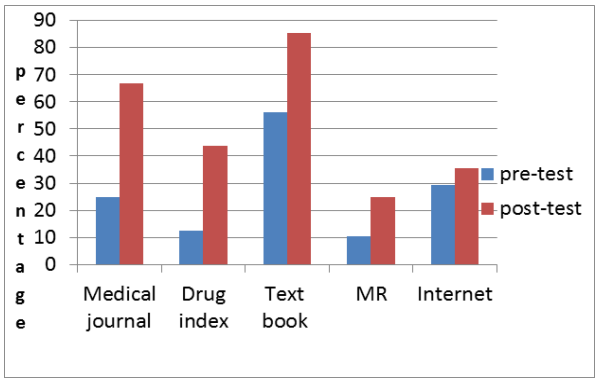

Fig. 1: Sources of drug information preferred by intern doctors. (n=48)

Discussion

The present study evaluated impact of educational intervention on knowledge and attitude of interns about RUM. At baseline, knowledge of interns about various issues related to RUM like EM, p-drug, STEP criteria, prescription format were average. This observation is quite similar to other studies assessing knowledge of

practioners about RUM.[12] In present study, not a single intern was aware about no of drugs in NLEMI similar to previous study.[13] However after exposure to power point presentation addressing various issues related to RUM followed by group discussion, there were significant improvement in knowledge of interns regarding EM, p-drug, STEP criteria, NLEMI etc. various other studies also supported the fact that educational intervention produces significant improvement in knowledge about RUM.[14]

The present study observed significant improvement in attitude of interns towards RUM after intervention. Akici et al also reported significant improvement in prescribing competency of general practioners after intervention.[9]

At baseline, majority interns prefers to write brand name various studies have revealed that prescribing medicine by brand name has become a routine practice.[15,16] Pharmaceutical companies use various innovative ideas to advertise their brand and provide lucrative incentives to the practioner for prescribing their brand. This may be the reason for popularity of brand names as compared to generic name. In post-test, majority give preference to generic name which is a welcoming sign.

In this study, at baseline, very few participants were aware about advantages of practicing RUM and surprisingly not a single person was aware about effect of practicing RUM on economical consequences and availability of medicine. This is an important finding needs to be highlighted especially in developing economy like India with poor resources.

Most of the participants prefer textbook and medical journal for seeking information about any drug in pretest as well as post-test which should be encouraged further. RUM is an important issue and its practice should be promoted specially in developing economy with limited resources but at present also teaching RUM is not seeking much importance in most of the medical colleges which may be responsible for prescribing errors with its adverse consequences.[17,18,19] Hence, sincere efforts are required to promote RUM among clinicians to avoid irrational prescribing. WHO has suggested certain strategies to improve RUM like developing standard treatment guidelines to improve quality use of medicine, inclusion of EM concept in undergraduate and post-graduate medical curricula, regular updating of EML and configure therapeutic committees at regional and district levels.[20]

Finally to conclude, in the present study, educational intervention in the form of power point presentation followed by group discussion significantly improved knowledge and attitude of intern doctors about RUM. However, further research is required to see whether this improvement is short term or it has long term impact on prescribing habit of doctors doing internship.

References

1. World Health Organization. Guide to Good Prescribing. Geneva: WHO; 1994.
2. The Selection of Essential Medicines. WHO Policy Perspectives on Medicines. Geneva: World Health Organization; 2002.
3. National list of essential medicines of India, 2011. Available from: http://www.cdsco.nic.in/. [Last cited on 2016 Dec1].
4. Manikandan S, Gitanjali B. National list of essential medicines of India: The way forward. J Postgrad Med 2012;58:68-72.
5. Hanes C, Bajorek B. Pharmacist prescribing: is Australia behind the times? Aust J Pharm 2004;85:680–1.
6. Singh NR. P-drug concept and the undergraduate teaching. Indian J Pharmacol 2008;40:285.
7. Garbutt JM, Highstein G, Jeffe DB, et al. Safe medication prescribing: training and experience of medical students and housestaff at a large teaching hospital. Acad Med 2005;80:594–9.
8. Hilmer SN, Seale JP, Le Couteur DG, et al. Do medical courses adequately prepare interns for safe and effective prescribing in New South Wales public hospitals? Intern Med J 2009;39:428–34.
9. Akici A, Kalaca S, Ugurlu MU, et al. Impact of a short postgraduate course in rational pharmacotherapy for general practitioners. Br J Clin Pharmacol 2003;57:310–21.
10. De Vries TPGM, Daniels JMA, Mulder CW, et al. Should medical students learn to develop a personal formulary? An international, multicentre, randomised controlled study. Eur J Clin Pharmacol 2008;64:641–6.
11. Hassan NA, Abdulla AA, Bakathir HA, et al. The impact of problem-based pharmacotherapy training on the competence of rational prescribing of Yemen undergraduate students. Eur J Clin Pharmacol 2000;55:873–6.
12. Mahajan R, Singh NR, Singh J et al. Current scenario of attitude and knowledge of physicians about rational prescription: A novel cross-sectional study. J Pharm Bioalln Sci. 2010;2(2):132-6.
13. Bajait CS, Pimpalkhute SA, Sontakke SD et al. Evaluation of knowledge, attitude and practice of rational use of medicines among clinicians in a tertiary care teaching hospital. Int J Nutr Pharmacol Neurol Dis. 2014;4(3):153-7.
14. Esmaily HM, Savage C, Vahidi R, et al. Does an outcome-based approach to continuing medical education improve physicians' competences in rational prescribing? Med Teach 2009;31: e500–6.
15. Rathod R, Rathod A, Gupta VK et al. Audit in dermatology for rational prescribing. Res J Pharm Biol Chem Sci 2012;3:518-24.
16. Abidi A, Gupta S, Kansal S, et al.. Prescription auditing and drug utilization pattern in a tertiary care teaching hospital of western UP. Int J Basic Clin Pharmacol 2012;1:184-90.
17. Patrício KP, Alves NA, Arenales NG et al. Teaching the Rational Use of Medicines to medical students: A qualitative research. BMC Med Educ 2012;12:56.
18. World Health Organization. Factsheet: WHO Policy Perspectives on Medicines-Promoting rational use of medicines: Core components Geneva: WHO; 2002. Available from: htpp://www.who.int/entity/medicines/publications/policyperspectives/ppm05en.pdf. [Last cited on 2016 Dec 1.
19. Maxwell S, Walley T, Ferner RE. Using drugs safely. BMJ 2002;324:930-1.

20. World Health Organization. The Selection and Use of Essential Medicines-Report of the WHO Expert Committee. Geneva: WHO; 2011:8-9.