

To assess awareness regarding rational drug therapy and fixed dose combinations amongst interns and II MBBS students in tertiary care teaching hospital in Maharashtra, India

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ABSTRACT

Background: The present study was designed to assess awareness regarding rational drug therapy and fixed dose combinations (FDC) amongst interns and II MBBS students in a tertiary-care teaching hospital in Maharashtra, India.

Methods: This cross-sectional, questionnaire-based study containing MCQ and analytical questions on rational drug therapy, fixed dose combinations and role of Pharmacist in dispensing correct drug to the patients was carried out in both interns (n=80) and II MBBS students (n=100). The completed questionnaires were then collected and analysed statistically for responses.

Results: Mean average score obtained by II MBBS students (score - 36.66marks) was significantly better than interns (score- 20marks) which probably may be due to pharmacology teaching they were undergoing. II MBBS students were found to be better informed as compared to the interns ($p<0.05$) on questions related to rational drug therapy. On the questions related to rationality of FDC in Yes/No type, interns and II MBBS students were found to be equally informed ($p>0.05$). However, on question related to justification of FDC, interns were found to be better informed as compared to the II MBBS students ($p<0.05$). On single question pertaining to role of pharmacist, interns were found to be better informed than II MBBS students possibly due to their better understanding of patient-pharmacist relationship.

Conclusions: Our study highlights the significance regarding knowledge of rational drug therapy and fixed dose combination (both rational and irrational), both rational and irrational, amongst both interns and II MBBS students while identifying the possible areas of interventions to make them rational clinicians.

Keywords: Fixed dose combinations, Interns, MBBS students, Rational drug therapy, Questionnaire

INTRODUCTION

Prescribing fixed dose drug combinations (FDCs) has become a trend in medical practice. Last decade witnessed about one-third fixed dose combinations among the new products brought in the market worldwide.¹ FDCs contain two or more drugs in a fixed dose ratio. Clinicians claim better patient compliance while prescribing fixed dose drug combinations. The two drugs in rational FDC should act by different mechanisms, the pharmacokinetics must

not be widely different, or the combination should not have supra additive toxicity of the ingredients.² In certain situations patient may not actually need all the ingredients present in a combination, this escalates the cost of therapy which may indirectly lead to poor patient compliance.

Study conducted by Gautam et al has highlighted the need to sensitize undergraduate medical students about irrational drug combinations available in the market.³ The basis of many fixed dose drug combinations being taught

to the undergraduate medical students and also being prescribed popularly, appears to be irrational to pharmacologists.

It is widely assumed that use of drugs by qualified doctors of modern medicine would be rational. However, in reality, irrationality abounds in many aspects of drug use.⁴ Increase in irrational use of medicines is due to factors such as false beliefs, inadequate knowledge on part of the consumers, professional profit driven approach of prescribers, lucrative promotional activities by pharmaceutical industry and lack of enforcement of regulations by regulatory authorities.⁵ Irrational use of medications (increased use of over the counter (OTC) drugs, prescription, non-prescription drugs and traditional medicines) leads to increased health hazards, failure of therapy and lack of patient satisfaction making medication use and safety a global issue.⁶⁻⁹ Thus, rational drug use is an essential factor in ensuring patient safety, effective management of diseases and promoting good health care services.¹⁰

During the tenure of second year of MBBS study, pharmacology syllabus is aimed at imparting knowledge about rational drug therapy and fixed dose combination. But these students are not assessed about good prescribing practices and the application of this knowledge to augment prescribing skills.

In Pharmacology the syllabus which is taught is mostly focused on imparting knowledge which is theoretical. Internship is a period of medical apprenticeship under the guidance of experienced doctors. But unfortunately, during MBBS study, interns are often left to fend for themselves during their training and their prescriptions are hardly supervised.¹¹ Thus, those who are not that well-equipped in rational prescribing continue to make medication errors in their future practice also.

Keeping all these things in mind, we had planned the study to assess awareness regarding rational drug therapy and fixed dose combinations amongst interns and II-year MBBS students in tertiary care teaching hospital and to look for possible options which can be helpful in reinforcing the concept of rational pharmacotherapeutics.

METHODS

This cross-sectional, questionnaire-based study was carried out in a tertiary-care teaching hospital in Maharashtra, India. A questionnaire was prepared containing MCQ and analytical questions on rational drug therapy, fixed dose combinations and role of pharmacist to dispense correct drug to the patients. Out of total 8 questions, 6 MCQ type questions were on rational drug therapy, one question on fixed dose combination (to justify 10 fixed dose combinations in yes/no type stating the reason for the same) and one MCQ type question on role of Pharmacist to dispense correct drug to the patients. Drug

combinations included both W.H.O. recommended and irrational combinations available in the market.

The questionnaire was pre-validated by carrying out a pretest assessment in 10 each intern and II MBBS student and assessed for face validity and internal consistency. Changes were made in the wording depending on the pretest responses. The questionnaire was finally validated by 3 expert and senior pharmacologists.

Interns posted in different departments of the hospital in the year 2017 (n=80) were approached and explained the purpose of the study. The informed written consent document and the questionnaire were handed over by the study investigators to individual interns at 10 a.m. and collected after half-an-hour.

Second year students (n=100) were approached during their lecture hour at 2 p.m. and after obtaining informed written consent, questionnaire was handed over to them and collected after half-an-hour. The completed questionnaires were then assessed for responses. Maximum score of the questionnaire was 54.

Statistical analysis

Total marks scored were analysed by means of student t-test between two groups (Interns and II MBBS students) to determine the presence or absence of statistically significant difference. Percentage of correct answers were analysed by Z test of proportion. Wherever computed, p value of less than 0.05 was considered significant, since the confidence interval was maintained at 95%.

RESULTS

The completed questionnaire was analysed in all 80 interns and 100 II MBBS students. Of the total 80 interns, 45 were male and 35 were female. The mean age of respondents was 23.3 years in interns. Out of total 100 MBBS students, 54 were male and 46 were female while mean age of II MBBS students was 20.2 year.

For 7 MCQ type of questions (6 on rational drug therapy and one on role of pharmacist to dispense correct drug to the patients), total score was 14, while for correct answer on each fixed drug combination, score was 4 (one for telling whether that was rational combination or not i.e. Yes/No, while 3 marks for justifying the reasons for the same). Total score for fixed drug combination was 40. Thus, total score for all questions was 54.

Mean average total score for interns was 20.5 marks and for II MBBS students 36.66 marks. These results indicate that II MBBS students are significantly ($p < 0.05$) better informed about the concept of rational therapeutics and combinations as compared to interns as analysed by Student's t-test (Figure 1).

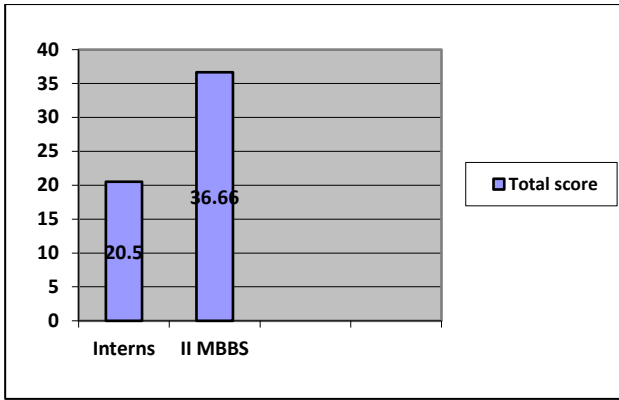


Figure 1: Total scores for all questions among Interns and II MBBS students.

Out of total 6 questions on rational drug therapy, percentage of correct answers was 51.25% by interns while remaining 48.75% were incorrect answers. Similarly, percentage of correct answers was 72% by II MBBS students while remaining 28% were incorrect answers. Hence it can be said that II-year students were found to be better informed as compared to the interns ($p < 0.05$) on questions related to rational drug therapy as analysed by Z test of proportion (Figure 2).

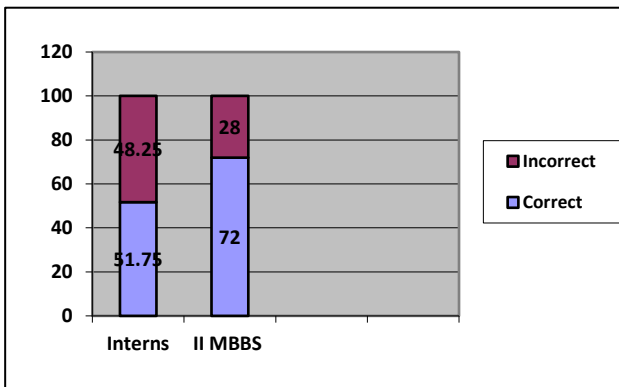


Figure 2: Score for 6 questions related to rational drug therapy among Interns and II MBBS students.

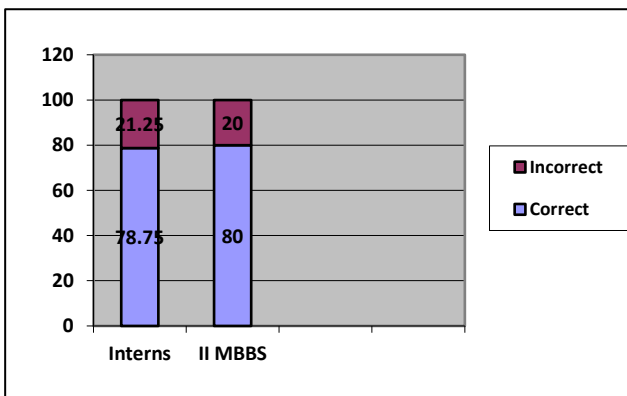


Figure 3: Score for 10 sub questions related to fixed dose combinations in Yes/No type among Interns and II MBBS students.

Out of total 10 sub questions on fixed dose combinations with Yes/No type answers, percentage of correct answers was 78.75% by interns while remaining 21.25% were incorrect answers. Similarly, percentage of correct answers was 80% by II MBBS students while remaining 20% were incorrect answers. Interns and II MBBS students were found to be equally informed ($p > 0.05$) in answering whether the combinations were rational or not in yes or no, as analysed by Z test of proportion (Figure 3).

Out of total 10 sub questions on fixed dose combinations asking for justification, percentage of correct answers was 62.5% by interns while remaining 37.5% were incorrect answers. Similarly, percentage of correct answers was 45% by II MBBS students while remaining 55% were incorrect answers. These results indicate that interns were found to be better informed as regards to justification of FDCs as compared to the II MBBS students ($p < 0.05$) as analysed by Z test of proportion (Figure 4).

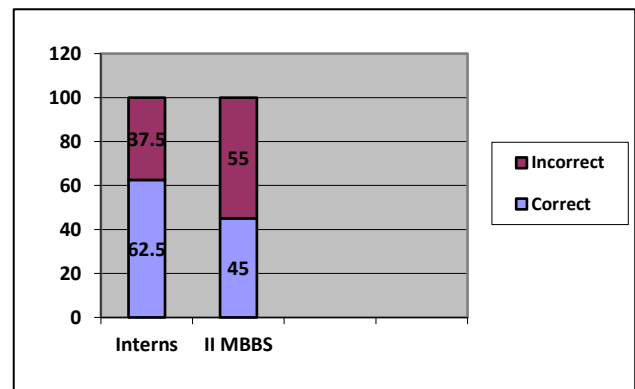


Figure 4: Score for 10 sub questions related to fixed dose combinations asking for justification among Interns and II MBBS students.

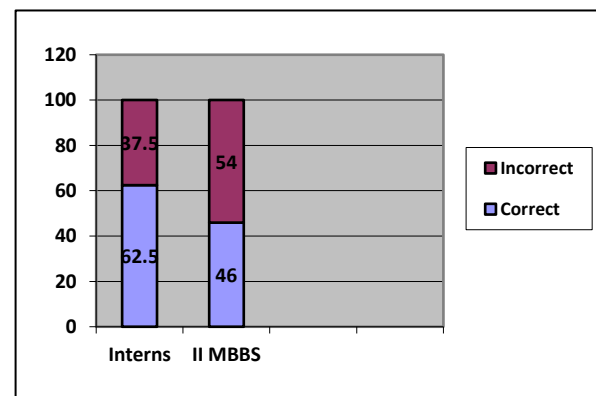


Figure 5: Score for one question related to role of pharmacist among Interns and II MBBS students.

On one question related to the role of pharmacist to dispense correct drug to the patients, percentage of correct answer was 62.5% by interns while remaining 37.5% was incorrect answers. Similarly, percentage of correct answers was 45% by II MBBS students while remaining 55% were incorrect answers. This shows that the role of

pharmacist was better appreciated by interns than II MBBS students ($p < 0.05$).

DISCUSSION

This present study was planned to assess awareness of interns and II MBBS students about rational drug therapy and fixed dose combinations in tertiary care teaching hospital in Maharashtra.

This may be due to rational pharmacotherapy being stressed upon to II MBBS students during their pharmacology training and possibly there are chances that Interns might have forgotten the same. However, being future clinician's interns do need to have adequate information about rational prescribing. Reinforcing the same to interns can be of help here.¹²

Out of total 6 questions on rational drug therapy, II MBBS students were found to be better informed as compared to the interns ($p < 0.05$). This may be due to the fact that II MBBS students have recently undergone training in rational drug therapy and evidence based medicine during their Pharmacology teaching. It may be advisable to conduct sessions for Interns during their orientation programme.

The WHO (world health organisation) six-step guide forms the basis of rational prescribing and prevents the prescriber from missing out on any of the key elements.¹³ This emphasises the fact that the WHO step-by-step guide to prescribing be included as a part of UG training and reiterated during the training of interns thereafter. Lecture should be arranged on rational drug therapy during internship orientation programme with the help of clinical pharmacologists.

A large number of interns expressed a lack of confidence in key prescribing skills such as dosage calculation, writing prescriptions, and accessing drug-related information. This shows that doctors entering into internship are largely unprepared to handle the challenge of independent prescribing.¹⁴ A cross-sectional study done on interns in New South Wales hospitals also demonstrated significant deficits in prescribing. Similarly, a study done on prescribing pattern among interns in a primary health centre in India highlighted the problem of irrational prescribing.¹⁵ Thus, it is important that interns are groomed in the art of rational prescribing by senior faculty and medical teachers.

Out of total 10 sub questions on fixed dose combinations with Yes/No type answers, interns and II MBBS students were found to be equally informed ($p < 0.05$) in answering whether the combinations were rational or not. This indicates that both interns and II MBBS students have adequate knowledge whether the given FDC is rational or irrational as per WHO guideline. This similarity in results in both the groups may be due to the fact that to answer

yes/no type of question assesses only cognitive domain of learning.

Out of total 10 sub questions on fixed dose combinations asking for justification, interns have scored significantly more ($p < 0.05$) than II MBBS students. This is probably because of their training in medicine and exposure to drug usage in clinical conditions. II MBBS students have a question on FDC in the theory and practical examination. However, these students were just exposed to combination therapy and F.D.C. in the lecture without any much clinical exposure.

From the result it is evident that students are aware of the basic concept of fixed dose combination (FDC) but lack the knowledge regarding the deeper scientific aspects of the FDCs like their advantages, disadvantages, rationality. This highlights the importance of acquiring knowledge on justification of combinations for particular indications in II-year pharmacology syllabus and internship orientation programme. By giving a focused educational intervention through an interactive classroom presentation, the awareness of students could be substantially increased about all aspects of FDCs.

On one question pertaining to the role of pharmacist to dispense correct drug to the patients, interns scored significantly better ($p < 0.05$) than II MBBS students probably because of their better understanding of patient-pharmacist relationship due to their clinical postings and exposure about role of Pharmacist in hospital dispensaries.

Limitations of the present study was a questionnaire-based study which may produce subjective variability in responses. The sample size of the intern was small. Although it provided an overview about knowledge of prescribing skills, it could not analyse their application in actual clinical practice. A single assessment in a single setting may not correctly depict the entire picture. Repeated studies and assessments of subsequent batches of interns and II MBBS students will throw more insight on the topic.

CONCLUSION

The study has highlighted important issues in relation to rational prescribing and fixed dose combinations among interns and II MBBS students. II MBBS students performance were better than interns in total score and in questions related to rational drug therapy owing to undergraduate teaching in pharmacology they were undergoing presently. On the other hand, interns have better performance in offering justifications about rationality and irrationality of various fixed dose combinations owing to their clinical exposure during ward posting and communication during their clinical training under prescribing physicians.

Case therapeutic studies should be more in number for II MBBS undergraduate pharmacology teaching as it will

give them more focus on clinical use of drugs and this sensitisation will further help them in better understanding of their future medical training in Medicine. Relevant preparations of FDC should be given to students for rational analysis after each system has been taught to sensitize them about rational prescribing during their formative years of medical learning. During the orientation programme for interns few sessions should be planned on rational therapeutics to refresh their knowledge about rational use of drugs and FDCs in practice. Such improvisations will have executed correctly might help us in making our budding doctors, prudent clinicians in practice.

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