ORIGINAL RESEARCH PAPER VOLUME-6 | ISSUE-8 | AUGUST - 2017 | ISSN No 2277 - 8179 | IF : 4.176 | IC Value : 78.46

INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

A SURVEY ON METHODS OF UNDERGRADUATE PHARMACOLOGY TEACHING

Pharmacology

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ABSTRACT

Introduction: Knowledge of pharmacology to choose and prescribe drugs is a major challenge encountered by medical practitioners. A number of initiatives have been carried out to improve the teaching of pharmacology and applied therapeutics. **Material & methods:** A survey was conducted on medical students, pursuing pharmacology at MGM Medical College, Navi-Mumbai during the month of October 2013, to obtain information regarding students attitude towards pharmacology as a subject. A structured validated questionnaire, with multiple options was given to each of them. They were asked to select the options which they felt was/were the best. Students were instructed not to reveal their identity in the questionnaire. The completed questionnaires was collected and assessed with the help of faculty. **Result:** One Hundred students participated from the 2nd year MBBS. Most of them suggested to have more problem based learning than didactic lectures and to have integrated teaching with other clinical subjects. Only one student happen to know the prospects of being MD in Pharmacology and DM further. Suggestions to improve pharmacology teaching were noted. **Conclusion:** The finding of the study would be of interest to medical educators in modifying undergraduate pharmacology teaching program.

KEYWORDS:

Pharmacology, Problem-solving, Student attitude; survey, Teaching

INTRODUCTION

Pharmacology is a field that encompasses drug composition, properties and mechanism of action, therapeutic effects, interactions, adverse effects and contraindications of drugs. In India this subject is introduced in the third semester to the medical students and is horizontally integrated with other para-clinical subjects like microbiology, pathology and forensic medicine. The training in Pharmacology takes place by way of didactic lectures, audio-visual aids, problem based learning by the use of various clinical problems and practical curriculum which includes animal experiments, prescription writing. Pharmacology curriculum plays an integral role in medical education. Learning pharmacology to choose and prescribe drugs is a major challenge encountered by students.[1]

Traditionally, the teaching of pharmacology in medical schools follows a discipline-based and lecture-based approach with heavy emphasis on acquiring factual knowledge concerning drugs.[2] It is generally opined that teaching pharmacology course in medical schools has failed to keep pace with the rapid changes in medical practice.[1] Many attempts have been made to improve the teaching of pharmacology and therapeutics. It is easier to take a lecture on calcium channel blockers than to teach students how to select one for a particular indication. Closely linked to this aspect is how prepared are we mentally, logistically, and academically to take up these challenges?[3]

In Mahatma Gandhi Mission Medical College, Navi Mumbai, the lectures are delivered through power point presentation, slide projector or blackboard. The practical classes are conducted in the departmental laboratory for a duration of two hours. It consists of demonstration of animal experiments, prescription writing for common diseases including emergency medical conditions and problem based learning .The prescriptions are analyzed by discussing in detail about the medical condition and giving stress more on the therapeutic aspect of various drugs which can be indicated for the specified condition, their doses, frequency of administration, adverse effects, interactions and contraindications etc. In problem based learning, a clinical problem is presented to the students, each problem is accompanied with relevant questions to the understanding of the concept. A moderator is present throughout the session not as an instructor but as a facilitator of the learning process.

The assessment of theory and practical is done separately, the student has to get 50% marks separately in the theory and the practical. The theory evaluation is by two papers of two hours duration each. The practical examination consists of spots, single and multiple drug prescription writing, pharmacy and criticism of prescription and comments on rational fixed-dose combination of drugs. Student's attitude for the subject is an important part of teaching and learning experience. The assessment process and feedback is also an important part of curriculum for improving the teaching and learning process.

This study was designed to know:
1) The student attitude towards teaching and learning of pharmacology at MGM Medical College, Navi-Mumbai.
2) Student feedback on the assessment process of Pharmacology.
3) Suggestions to improve the teaching and learning of the subject.

MATERIALAND METHODS

The study was conducted in the Department of Pharmacology, MGM Medical College, Navi-Mumbai in the month of October 2013. One hundred MBBS students from fifth semester were included in the study (n=100). Institutional Ethics committee permission was taken prior to the study. Participation in the study was voluntary. The questionnaire used in the study was framed after validation and on discussion with the faculty members of department of pharmacology. The students were asked to complete a questionnaire, which consists of two parts.
The first part consisted of demographic and other relevant information about the student respondents. The sex and nationality of the respondents was noted. Second part provided to them consisted of 17 questions with 2-3 options. They were asked to select the options which they felt was/were the best. Students were allowed to give their own suggestions or remarks wherever necessary. The students were asked to give reasons for attempting questions like multiple choice questions should form 50% of the examination questions and whether there should be more emphasis on problem solving exercises rather than on didactic lectures.

Students were instructed not to reveal their identity in the questionnaire. The completed questionnaires were collected and assessed with the help of the faculty. The data is calculated as percentage. The reasons and suggestions were grouped together and noted.

RESULT

One hundred students participated in this questionnaire study. The males were 51% compared to 49% of females. All of the participants were of Indian origin.

Table No.1 shows Results of the student's responses. Most favorite subject in basic sciences was Pathology, Pharmacology was the favorite subject for one male student. 92% of students agreed Pharmacology will help them in choosing Drugs rationally, rest were neutral about this statement. 91.7 % student's strongly suggested that Pharmacology should be more closely integrated with the clinical sciences and would like actual cases from the hospital to be used during problem solving exercises. Very few (2%), agreed Pharmacology helps them to develop problem solving & Logical reasoning skills. They were happy about the transparent assessment in Pharmacology and that it concentrates on ability to acquire facts. They also emphasized to have more problem solving exercises. Only 1% of the student considered pharmacology as one of the subjects for post-graduation.

Table No. 1: Results of the student's responses

Question	Response		
	Agreed	Disagree	Neutral
Pharmacology will help in choosing Drugs rationally	92%	0%	8%
Find the Lectures interesting & stimulating	37%	23%	50%
CAT should be used instead of animal experiments	92%	8%	0%
Most interesting Topic	1. CVS 2. CNS 3. ANS		
All topics will be useful in future	87%	3%	20%
Would like Pharmacology to be more closely integrated with the clinical sciences and would like real cases from the hospital to be used during problem solving exercises.	91%	5%	4%
Pharmacology helps me to develop problem solving & Logical reasoning skills.	2%	90%	8%
Would welcome modules on Pharmacology and therapeutics during the clinical years of my training.	57%	13%	30%
The assessment system in Pharmacology is transparent.	93%	1%	6%
MCQs should form 50 percent (Suggestion)	63%	33%	4%
MCQ should be 100% (Suggestion)	22%	28%	50%
MCQ, SAQ and LAQ are perfect as they are	25%	26%	49%
The assessment concentrates on ability to acquire facts rather than on the development of problem solving skills.	72%	18%	10
There should be more emphasis on problem solving exercises rather than on didactic lectures.	96%,	0%	4%
The Pharmacology teachers have inculcated in me a capacity for self-directed learning.	43%	37%	20%
I will consider Pharmacology as one of my subjects for Post-graduation & DM in Clinical Pharmacology.	1%	90%	9%

DISCUSSION

Student feedback has been considered to be an effective method for modification of undergraduate curriculum and making pharmacology more interesting and practicable as a subject of medicine. The majority of the participants were female students whose parents are non-medical personnel. Student feedback is thus considered an invaluable tool for improving students performances when suggestions obtained from students are implemented [7]

In the current study it was observed that more than half of the students (91%) agreed that pharmacology to be more closely integrated with the clinical sciences and would like real cases from the hospital to be used during problem solving exercises. Another study from New Delhi, showed that 80.46% students agree for same.[8] In another study from Fatehgarh, India it was observed (65%) agreed for same.[9] However, these studies were conducted in a newly established medical college, ours is a college established since 25 years. It was opined in the study that bedside teaching should be started after 6 months of teaching basic pharmacology and should be continued till the completion of the final year as 57% student in our study agreed on welcoming modules on Pharmacology and therapeutics during the clinical years of training. Only 2 % agreed Pharmacology helped them to develop problem solving & Logical reasoning skills and 90 % disagreed for the same. About MCQ's, most students agree with 50% MCQ in curriculum while when asked for 100% MCQ most students were neutral. The statement whether multiple choice questions should form 50 percent of examination questions remained unanswered in one study from Manipal.[10] In another study, 47% agreed and 18% disagree with it.[9] Some students feel it helps them to prepare for postgraduate entrance exams. Others were of the opinion that it helps them in reasoning out rather than memorizing long paragraphs, whereas others commented they can express better an answer in an essay type question.

On if CAT (Computer Aided Teaching) and simulation software should be used instead of actual animal experiments, 92% agreed and 9% did not agree. While in another study CAT was asked as an open ended question where not a single student commented on it which probably could be due to the ignorance regarding the advantages of CAT[9] or the knowledge and existence of CAT altogether. In another study done on the usefulness of CAT, it was observed that a large number of students expressed the advantages of CAT to being reduction in animal use, clear estimation of drug effects and repeated observation of experiments and demonstration of difficult experiments.[11] Therefore, students should be introduced to simulation or Computer Aided Teaching of animal experiments which is helpful for students to understand pharmaco-kinetics & pharmaco-dynamics.

In China, the present day pharmacology course consists of a combination of lectures, problem based learning sessions, clinic-correlated lectures and small group discussions.[4] In Malaysia, pharmacology learning has gradually moved from factual regurgitation to more clinical reasoning, from laboratory based medicine teaching to more patient oriented approach.[5] At the Mc Master University in Canada the problem based learning curriculum is integrated across organ systems, spanning population and behavior related perspectives rather than being based on discrete disciplinary areas.[6]

Small Group Discussion should be an important component of teaching where common problems could be shared and be solved by trying different approaches with a special focus on P drug concept. Use of Structured Role Play which involves construction of imaginative scenarios that help students to explore new concepts that can help them to learn things that don't seem very interesting.

Limitations of study

There may be chance of bias as study was conducted by PG students of the department. The questions were formulated by the staff members. Many students did not fill the suggestion and reasons for certain questions. Few students might have been uncomfortable about frankly expressing their opinions and criticizing the teachers and may have not completed the questionnaire.

CONCLUSION

Pharmacology is a science that is ever changing. Thus, we need to identify priority areas for feedback oriented improvement in teaching pharmacology. It's the need of the hour to address student point of view to make learning the subject from a futuristic practical therapeutic point of view and simultaneously mitigating the general stigma that the study of this essential medical subject is dry and boring. This study has helped us in knowing the preferences in teaching pharmacology, about improving learning methods and acquiring important feedback which will be useful in modifying and improving undergraduate pharmacology teaching.

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