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Research Paper

Introduction of Problem-based Learning in Physiology at MLN Medical College Allahabad

Medical Science

KEYWORDS : Problem based learning, Didactic, curriculum

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ABSTRACT

The traditional view of teaching Physiology in medical college is that student learning should be teacher-centered using the traditional didactic teaching method. This faces tremendous criticism as student learning is essentially passive. Physiology as a subject loses its utility as students cram it for the sake of examinations. In order to overcome this, Problem based learning was introduced to first year students. The entire 18 hour curriculum allotted for GI PHYSIOLOGY was divided into 10 hrs of didactic lecture where mainly theoretical topics were taught while 4 sessions of 2 hr each for Problem Based learning where mostly applied part was covered. A facilitator supervised the sessions. On completion, a questionnaire was given to the students for evaluation. Majority of the students opined that Problem based sessions were beneficial and made the topic interesting. Thus it may be concluded that it should form a part of regular curriculum.

INTRODUCTION

Physiology is an essential part of medical education but if it is taught in the traditional way to the first year medical students with little active participation by students they are most likely to regard it as having limited utility. The traditional didactic method of teaching faces tremendous criticism for being teacher centered thus hampering the learning process. A good knowledge of physiology is essential as it has a bearing on subsequent training. Only when the principles underlying diseased states are pointed out to the medical students and they are shown how this knowledge aids in interpretation of symptoms and gives a direction to treatment, then students can become good physicians of tomorrow. For this, more versatile teaching strategies should be adopted. PBL is a good teaching strategy as it offers a very challenging opportunity for student learning. Use of Problem Based Learning (PBL) enables critical thinking by placing students in the active role of practitioners confronted with situations that reflect the real world. It increases understanding of Physiology and creates more interest by allowing integration of knowledge and encouraging teamwork

The aim of this study was to try and evolve systems of teaching and learning so that the students could adopt a problem solving approach by applying the concepts and principles of physiology to clinical problems. It was also aimed at finding that an appropriate mixing of didactic lectures and PBL sessions would be better in making the students learn physiology

METHODOLOGY

The study was performed on first year medical students while teaching digestive physiology. A total of 14 classes were allotted to cover the topic over a period of 8 weeks (September and October 2014). Ten of these classes were conducted using traditional didactic method. They were complemented with four PBL sessions of 2 hours each. The whole batch of 150 students was divided into 6 smaller groups of 25 each. The procedure for PBL was explained to them and one week prior to PBL a handout containing 6 clinical problems along with relevant questions was given to each student. The students were given enough time to study the problems using standard textbooks of physiology. Given below is an example of a clinical case history in the first session:

A seventy year old woman presents with history of weight loss, decreased appetite and epigastric discomfort. Examination reveals her to be thin but not cachectic and stools are positive for occult blood. An upper GI evaluation reveals a gastric ulcer.

Questions

1. What is peptic ulcer?
2. What are the causes of gastric ulcer?
3. What is the mechanism of secretion of HCl?
4. What is post prandial alkaline tide?
5. What is Zollinger Ellison syndrome?
6. What is the physiological basis for management of peptic ulcer?

On the day of the session all groups were randomly assigned a clinical problem. Now one member was randomly selected from first group to give the answer for the first question of the allotted clinical problem. This was discussed in front of rest of the class. The answer to the next question was assigned to a different member of the same group. This process was continued till all the questions for all the problems were discussed. Throughout these sessions a facilitator was coordinating the events. He was the same person who took the didactic lectures. PBL sessions were modified this way to cover the entire syllabus in stipulated time. Care was taken that all students participated in the discussion and the important points of the topic were covered.

After all GI Physiology classes were completed the students were asked to fill up a questionnaire. This questionnaire was devised to compare PBL sessions to Didactic teaching on certain key aspects of learning. The questionnaire had 8 items using the Likert five point grading scale (Table 1). The number and percentage of students responding to each item was noted.

RESULTS

Out of total 150, 15 students were absent. Overall 135 students responded to the questionnaire. 5 students filled the questionnaire incompletely so they were discarded. From the table (Table 1) it is evident that majority of students preferred PBL sessions over traditional didactic lectures. 79% felt that PBL were better at fulfilling the learning objectives while 81% were of the opinion that PBL helped in better understanding of the subject. More than 70% opined that PBL enabled better student participation and it increased student to student and student to teacher interaction. About 60% thought that PBL was more interesting and more such classes should be organized. Large 85% agreed that both didactic and PBL if combined in an appropriate fashion prove more beneficial than either one alone. Only 14 students were neutral and 5 disagreed with this.

Student's remarks showed that most of them were happy with the introduction of PBL sessions but felt that more time should be given for preparation. Some of them felt that combination of didactic and PBL made the subject more interesting.

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DISCUSSION

A lot of criticism is leveled against lecture as a teaching method still it remains the primary mode of teaching. It helps to build up basic theoretical knowledge which must be gained before we can use other interactive methods. It is a good method in pacing the rate of work for a large body of learners (1). In an endeavor to make physiology more interesting and meaningful lectures were mixed with PBL sessions. The approach of PBL is learning in context. It puts the learner in a particular situation and then gives him a task as a source of learning (2). The burden of learning is shifted from teacher to student (3). Here motivation for learning is self imposed because students can see the practical application of knowledge (4). Niedar et al (5) have used the Team based learning method in teaching gross anatomy and they felt that this method lead to closer interaction between them and students. Parmelee et al (6) found that team based learning could have a role in exploring non cognitive domains. Our study also concluded that an appropriate mixing of didactic and PBL will help students to become better and scientific physicians

Table 1

Summary of student responses ton8 statements provided in the questionnaire using a five point Likert scale

S. No.	Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1	PBL was more effective in fulfilling learning objectives	40	63	18	6	3
2	PBL enabled better understanding of subject	38	68	16	7	1
3	PBL enabled greater student participation	26	73	25	4	2
4	PBL allowed greater interaction with other students	24	75	28	2	1
5	PBL increased teacher student interaction	22	77	18	10	3
6	PBL was more interesting	33	45	30	12	10
7	More PBL classes should be organized	26	53	29	19	3
8	A mix of didactic and PBL sessions is better than either alone	28	83	14	3	2

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