

Original Article

Innovative Tutorial With Case Based Approach And Peer Assisted Learning

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ABSTRACT

A tutorial is a small group learning method where students gather together with a tutor to discuss, interact and clarify previously presented material in more detail and also clarifying individual doubts.

Objectives: *To conduct tutorial using case based approach, to assess whether students have understood all the concepts using pre and post multiple choice questions test and to evaluate the effectiveness of this innovative tutorial using feedback questionnaire from students.*

Methodology: *Topics were announced one week earlier. Students allotted were 25 and time allotted was 2 hours. Pre test was given to assess the base line knowledge of the students in these topics using 20 multiple choice questions. 20 different case scenarios were used. Each student was made to comment on one of the case scenario. Each case had 3 questions to test their different taxonomic level of cognitive domain like knowledge, comprehension and application. A post-test was conducted at the end of the tutorial and feedback was obtained from each student using a questionnaire.*

Results: *Evaluation of feedback forms revealed that all 20 students expressed that case based tutorial was effective, helped in understanding the topics better, there was safe environment for learning and they all liked learning from their peers. Comparison of pre and post test scores revealed 33% increase in post test after attending case based tutorials.*

Conclusion: *Case based tutorial facilitates active learning, better understanding of concept and improves problem solving capacity.*

Key words: *tutorial, cased based approach, peer assisted learning*

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INTRODUCTION

Tutorial is a teaching learning method in which one teacher interacts with about 8-10 students. Tutorial is usually conducted after few lectures or a series of lectures, it is mainly designed to evaluate the extent of understanding and learning achieved by the student. The concerned teacher, responsible to conduct tutorial class, evaluates the performance of the students by asking questions and may also

clarify some of their doubts.¹

OBJECTIVES

1. To conduct tutorial using case based approach.
2. To assess whether students have understood all the concepts using pre and post multiple choice questions test.
3. To evaluate the effectiveness of this innovative tutorial by obtaining student feedback using a questionnaire.

METHODOLOGY

This innovative tutorial was conducted for first year medical students in department of Biochemistry.

1. Topics were announced one week earlier. (topics allotted were Liver function tests, Renal function tests and Thyroid function tests)
2. Students allotted were 25 but only 20 students attended. Rest of the students had traditional question and answer type tutorial.
3. Time allotted was 2 hours. (but we had exceeded the time limit to 2:30 minutes as students were actively involved in discussing the cases)
4. Pre test was given to assess the base line knowledge of the students in these topics using 20 multiple choice questions and time given was 10 minutes.
5. 20 different case scenarios were discussed using power point presentation. Each student was made to comment on one case scenario. Each case had 3 questions to test their different taxonomic level of cognitive domain which included evaluation of student's knowledge (ability to recall information), comprehension (ability to understand significance of information) and application (ability to apply

theory knowledge to specific situation).

6. Marks allotted for the 3 questions were as follows: 2M for recalling the information, 3M for comprehension and 5M for application. Students were awarded marks depending on the 3 questions answered verbally.

7. A post-test was conducted with the same multiple choice questions at the end of the tutorial (after two and half hours) and time given was 10 minutes.

8. Feedback was obtained from each student at the end of the tutorial using a questionnaire. The questionnaire format (Table :1)

9. Validation of Case scenarios: educational objectives provided to faculty were Functional tests (Liver function tests, Renal function tests and Thyroid function tests) for discussion in tutorial. Tool chosen by faculty was case based approach as this method would help students to understand the significance and interpretation of functional tests. Next step followed was writing of case scenarios. These were discussed in detail by two experts in our subject who evaluated relevance of case based approach with respect to learning outcomes, grammar of construction and appropriateness of case scenarios.

10. Validity of questionnaire was evaluated by subject experts based on logical link between the questions asked in the questionnaire and the objectives stated.

11. Reliability was tested by comparing the pre-test score of an individual with that of group as a whole and also by comparing the post-test score of an individual with that of group as a whole.

RESULTS

Effectiveness of innovative tutorial was evaluated using feedback forms obtained from

	Yes	No
1. Do you like traditional question/answer type tutorial?		
2. Do you ask doubts in tutorials?		
3. Are your doubts clarified in tutorials?		
4. Do you like case based tutorials?		
5. Did case based tutorials help you in understanding the topic better?		
6. Did case based tutorials help you to apply your theory knowledge?		
7. Do you know how to interpret case reports?		
8. Did you like learning from your friends?		
9. Do you like working in a team?		
10. What is the difference between traditional tutorial and innovative tutorial? Write in few words. Which is effective and why?		

Table : 1

the students and by evaluation of their pre and post test scores.

Evaluation of feedback forms revealed that all 20 students expressed that case based tutorial was effective, helped in understanding the topics better, were able to interpret case reports properly, were able to apply theoretical knowledge. Everybody expressed that there was safe environment for learning and they all like learning from their peers.

Evaluation of pre and post test scores revealed 33% increase in post test after attending case based tutorials. Mean of post- test score was 16.6 (standard deviation 1.6) when compared to mean of pre- test score 10.1 (standard deviation 2.3) and the difference between mean was also statistically significant.

DISCUSSION

Tutorial is one of the small group

teaching-learning methods. Here, a small group of learners are guided by a teacher to help clear doubts, improve understanding and enhance knowledge of the subject.² Like lectures, tutorials are central to learning in medical school and they provide opportunities to discuss different aspects of the course. It allows a self evaluation on understanding key topics and concepts as well as feedback for the tutor. It allows development and encourages problem solving and critical thinking skills through active engagements during interactive tutorials supported by tutors.³ Traditional tutorials conducted in our department are simple recall type. Questions asked may vary from student to student, some may get simple questions and some may get difficult one. Marking or grading of the student remains unfair. Here there is no critical thinking involved by the student because most of the questions are direct type. There is no safe

environment for learning as it is conducted just like viva-voce and students are hesitant to ask and clarify doubts. To overcome the limitations of traditional viva based tutorial being conducted in our department, this innovative case based tutorial with peer assisted learning was attempted as a pilot study.

In this innovative tutorial, case scenarios were presented using power point presentation and each student had enough time of 5 minutes to go through the case (some students who were well prepared answered all the three questions in less than 5 minutes and some took about 7-10 minutes). The three questions asked in relation to the case assessed each student's acquisition of cognitive skill at three different taxonomic levels. This overcomes the bias of one student getting simple question and other getting difficult one as in traditional tutorial. As three different taxonomic levels of cognitive domain are assessed, this allows in-depth understanding of topic by the students, encourage students to develop their critical thinking and problem solving skill through discussion and also help them to link theory to practice. As each student is required to comment on the case, this improves student's communication skills. If the student is not able to answer correctly he is allowed to take help from his peers (but this help by his peers was not taken into consideration for his marking/grading). This peer assisted learning helps in developing group/team work skills and also a safe environment of learning as facilitator is passive and learning is taking place by exchange of knowledge between students and facilitator sums up all the points discussed by the students at the end and acts as a resource

person only when needed.

These case based studies are exercises which are very valuable in teaching decision making skills. The essential feature is that a situation is described in words (or possibly pictures). Then students are asked what they would do. The situation may relate to the diagnosis or treatment of the patients, or to any of a wide range of managerial or organizational problems.⁴

At the end of the tutorial each student is evaluated with same multiple choice questions given as pre-test. This provides immediate feedback to the student regarding his understanding of cases and their interpretation. Students who answered some questions wrongly in post test were noted, their misconceptions /doubts were clarified immediately thereby facilitating them to understand concept correctly. Evaluation of the feedback forms revealed that this innovative tutorial facilitated active learning in them. Before tutorial, students prepared themselves by reading information provided in the course textbook for the concerned topics and noting areas of uncertainty related to the texts and listing them for clarifications during a tutorial. During tutorial, students actively participated in the case discussions. Students can be active learners after tutorial by organizing key concepts covered during tutorial, recognition of linkages between tutorial, lectures and practical's, checking personal understanding of concepts or solutions to problems. Using this innovative approach, student can be made active learners at three different levels; before, during and after tutorial.

CONCLUSION

Case based tutorial facilitates active learning, better understanding of concept, application of theoretical knowledge to cases, improves problem solving capacity and decision making skills.

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