

Evaluation of different teaching modalities for better understanding of subject in first year medical students

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Abstract

Aim: To assess the effect of different teaching modalities in first year medical students at MAPIMS, Tamilnadu.

Methods: Two types of teaching methods were used, lecture class and case based discussion. Students were divided into two groups as Group I (case based discussion) and group II (lecture class). To assess the effect of both methods we used MCQs as pre and post test before and after the session respectively.

Statistical analysis: Statistical analysis was done using paired "t" test to compare the pre and post test of group I and group II. Independent "t" test was used to compare pre test of both groups and post test of both groups. A "p" value of less than 0.05 was considered as statistically significant results.

Results: Our study showed that in both type of teaching post test performance was better compared to pre test ($p=0.0001$). And within post test performance, Group I performed better than group II, with significance of 'p' value <0.05 .

Conclusion: Our study showed that case based discussion is better than usual lecture classes.

Keywords: medical student, teacher, teaching methods, lecture class, case discussion.

1.Introduction

Teaching physiology to first year medical students, in a way to make it interesting and also enhance their learning has always been a challenge. Student motivation and performance improve when the instruction is adapted to student learning preferences and styles[1]. Various methods are being used as alternative approaches to reinforce didactic instruction in Physiology, such as case-based learning (CBL)[2], problem-based learning (PBL)[3]. Many attempts have been made by various colleges of India and abroad to make the teaching more interesting and relevant. Expertise in teaching will develop after years of experience following use of various teaching methods[4]. According to the experience of the various authors, it was very difficult to retain the attention and interest of medical students in subjects, so there was introduction of problem based learning and small group discussion in addition to didactic

lectures, and the students met this approach with enthusiasm. From this success, they began to consider ways to incorporate this technique into the traditional didactic lecture activities[3,5,6]. The approach selected was to include whole class PBL sessions (PBLs) within the lecture series, and this has been very successful. Early clinical exposure, case based teaching as one of the other teaching method in first year students showed they were actively involved and enjoyed the experience[7].

The study was aimed to establish the effect of lecture classes versus case history based teaching methods in first year medical students in Physiology.

2. Material and methods

The study was conducted in first year medical students of MAPIMS, Tamilnadu, India, after taking the informed consent from all the

volunteers. Out of 150, 146 students were participated. Volunteers were divided in to two groups randomly according to their roll number wise as 1 to 75 as group I and from 76 to 150 as group II.

Two faculties were involved in the study to conduct the lecture class and case discussion, as faculty I and faculty II. Both sessions were needed to be conducted at the same time by two different faculties in different class rooms. Topic suppose to be taken (INSULIN) in both sessions was same and it was told to students to read and come.

Around 25 MCQ's were prepared related to the topic and all students had answered to those MCQ's before and after their respective sessions. The test before the session was named as pretest and the test after the session was post test. Pretest and post test marks were compared in both the groups after both sessions of teaching.

Gruoup-I attended case discussion class, at the beginning of case discussion, they answered for pretest MCQs, then case history based hard copy was give to all students to go-through, after discussion again they had answered for the same MCQs as post test.

Gruoup-II attended lecture class, in which at the beginning of the class they answered for pretest MCQs and after finishing lecture class again they had answered for the same MCQs as post test.

2.1 Statistical analysis

Statistical analysis was done using paired "t" test to compare the pre and post test of group I and group II. Independent "t" test was used to compare pre test of both groups and post test of both groups. A "p" value of less than 0.05 was considered as statistically significant results.

3. Results

Table 1: Paired t test

	Mean	N	Std. Deviation	t. value	P Value
Group II (pre test)	14.76	75	3.945	16.02	0.0001*
Group II (post test)	21.03	75	1.979		
Group I (pre test)	15.37	71	3.235	21.86	0.0001*
Group I (post test)	21.76	71	2.101		

*Significant at 0.05 level

Table2: Independent t test

	t.value	P Value
Group I Pre test & Group II Pre test	1.012	0.313
Group I post test & Group II post test	2.173	0.031*

*Significant at 0.05 level

4. Discussion

As it is shown in the result that after both lecture class and case based teaching, post test performance was better compared to pre test (table 1) in both types of teaching. But when we compared post test performance of lecture class (Group II) and case based teaching (group I) better performance was seen in Group I, with significance of 'p' value <0.05 (table 2). Our results are comparable to other studies as they shown early case based teaching, clinical exposure to specially first year medical students in system like endocrinology is very enjoyable and also they perceived it is valuable[7]. As shown in the other study, CBL motivates students toward self-directed learning and to develop analytic and problem-solving skills, it will be beneficial for students entry into clinical departments, and it develops soft skills in medical students[8]. A study has shown that case based problem solving has helped students in self directed learning, gave ample of motivation and increased interaction with their batch mates[9]. Some showed problem based learning is better than tradition lecture class, but statistical significance was not there[10].

As in some studies they have compared exam scores of students who attended case based and lecture class as teaching methods, there was no statistical significant differences in exam scores, but students preferred case based learning over lecture class as it is motivational, boosting and higher quality of education[11]. Study done by Carrero on air embolism as cased based and lecture base teaching, no significant difference of knowledge outcome of was detected[12]. Study by Gregory where lecture and case based teaching was used as methodology, examination scores suggests that both teaching methods were of same efficiency[13].

There are many other teaching methods which were used in para-clinical subjects like pharmacology, where case studies and therapy as a part of regular teaching was preferred by the students[4]. In fourth year medical students problem based learning was perceived better especially for team work[14].

Teaching in Physiology is followed always through lectures, practicals and tutorials. According to the university curriculum physiology is taught with the help of lecture classes, as delivering of more information to large group of students, but it is passive method and also teachers centred as a teacher it is not only duty to deliver large information to students but make sure that students should understand the information and can use that skillfully once they enters the clinical departments. Case based

learning will help students for self-directed learning, which helps in Medicine.

5. Limitation

As both the groups didn't get chance to expose to both faculties and also both the sessions experience. To conduct session by changing faculty, the topic must be different (topic bias may arise), if we conduct same topics as sessions by changing faculties, then it will be second exposure of same topic to students which won't give us the which method of teaching is effective.

6. Conclusion

Effect of case based discussion is considered to be a better method of teaching when compared to usual lecture classes. As Physiology is basic subject which will help to understand pathological conditions as students enters clinical departments and start taking case histories. Case discussion will involve student's interaction also.

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