Original Research Article

Comparison of case-based learning with didactic learning in the clinical teaching of orthopaedics

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Abstract

Background: Case based learning promotes better learning in clinical orthopaedics. So, the current study was done to compare the case-based learning (CBL) with lecture-based learning (LBL) in orthopaedics for final mbbs part II students and investigate the student perceptions of CBL as a teaching learning method. **Methodology:** This study was conducted among eight semester final medical part 2 students between June 2020 and July 2020. Total 100 students from 8th semester final MBBS part II participated in the study. Two groups comprising of 50 students each were exposed to Didactic lecture and CBL respectively. Post test in the form of multiple choice questions was conducted to both groups after the completion of the sessions. using a five-point Likert scale, Perceptions of students in the CBL group about CBL was assessed. **Results:** the mean Post-test scores conducted for CBL groups and didactic lecture group showed that cbl group has scored significant improvement ($p< 0.01$). Most students in the CBL class agreed that CBL performed better in developing interest, improving their understanding of the subject materials, promoting learning motivation, enhancing the communication skill, clinical thinking method, in developing confidence at bedside. **Conclusion:** Result from Post-test and the positive perceptions of students indicate that CBL was an effective teaching learning method in orthopaedics. It helps the students to apply knowledge in solving the clinical cases.

Keywords: case based learning (cbl), didactic learning, perception

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INTRODUCTION

teaching is observed traditionally as a transformation of information from teacher to student.[1] Key purpose of teaching was to produce a student who holds knowledge that is reproduced later in examination. Importance was given to content knowledge of the subject and ignoring many other important characteristics.[2] Case based learning is directed to attain the objectives which are beyond just disseminate the information in the minds of students. Case based learning reversed the orthodox approach to education swapping teaching with learning.[3] cbl not only transfer the knowledge to students but also develops habits of working in groups, good communication skills, critical thinking, and decision making.[4] CBL which is closely related to PBL is an interactive, student-centered, instructor-led learning approach.[5] CBL promotes active learning by utilizing clinical case scenarios which reflect real life experiences that students will face during the clinical phase of their medical education.[6] Learning does not end with basic training in the health profession, but continues for life. By developing self-directed learning skills, case based learning facilitates the production of lifelong learners[7] Cases are generally reported as problems which provide students with the history, physical findings, and laboratory results of a patient. the present study was conducted to compare case based learning with the didactic

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learning in teaching orthopaedics and also the student's perception about the case based learning was assessed.

METHODOLOGY

A cross sectional Interventional study was conducted in the Department of Orthopaedics, SVS medical college, Mahbubnagar, Telangana, India for the period of two months from June 2020 to July 2020. 100 students of final year M.B.B.S part II were enrolled into the study after obtaining Informed consent. Inclusion criteria: 8th semester Students of Final year M.B.B.S Part -II. Exclusion criteria Students who were not interested to participate and who were absent in any one of the classes. Institutional Ethical Committee permission was taken to conduct the study. By lottery method Students were divided into group A and group B with 50 students each. Group A was given case based learning (CBL) and Group B was given power point aided didactic lectures(DL). Both groups were given three sessions of Case based learning (CBL) and Didactic lectures (DL) on orthopaedics topics at two different venues simultaneously. The duration of each session was one hour. The topics taken during three classes were malnutrition of fractures, congenital club feet and osteomyelitis.

After the session, examination was conducted to both groups in the form of multiple choice questions for 30 marks. at the end of intervention, to assess the student's perception, a questionnaire with seven questions was given to group a students based on a five point Likert scale

Statistical analysis The data was analysed using SPSS 16. Continuous variables were expressed as mean±SD. Categorical variables were expressed as count and percentage. Unpaired t test was done for continuous variables and chi-square test was done for categorical variables. p value ≤0.05 was considered as statistically significant.

RESULTS

A total of 100 students have participated in this study and they were divided in to group A (CBL group) and group B(LBL group) with 50 students each. with respect to gender and age there was no statistical difference between the two groups (Table 1).

Table 1: Demographic information of medical students

	CBL (n=50)	LBL (n=50)	Significance test P value
Gender			
Male	29	31	Chi-square test **P=0.06**
Female	21	19	
Age	21.75±2.2	21.68±1.8	Student un paired t test **P=0.07**

All students in the CBL group participated in the discussion of case and questions and fulfilled the questionnaires, and all students in the LBL group completed the course. Students in both groups. submitted the written examination on time.

Table 2: Comparison of total score of examination

Groups	Marks (Mean±SD)	P Value
Group A (CBL Group)	25.12±1.8	<0.01
Group B (LBL Group)	18.56±2.8	

CBL: case-based learning, LBL: Lecture-based learning.

Table 2 is providing the information that the mean examination scores of the CBL group were significantly higher than the LBL group. ($p<0.01$).

After the completion of CBL session, Perceptions of students about CBL was assessed by pre-validated questionnaire using a five-point Likert scale. 94% of the students felt that method is interesting, 94% of the students felt that it motivated to read more. 94 of the students felt that it helped better understanding. 90% of the students that motivated to read more, 90% of the students felt that it motivated critical thinking, 90% of the students felt that it helped in the management of disease.88% of students felt that it has increased group interaction. 90% of the students felt that it gives them confidence in bedside. Table:3

Table 3: Analysis of percentage of student's feedback after CBL

Sl.No.	Questions	Strongly disagree	disagree	neutral	agree	Strongly agree
1	Method is interesting	0	0	0	3 (6%)	47(94%)
2	Motivated to read more and enhance self learning	0	0	0	3 (6%)	47(94%)
3	helped Better understanding	0	0	0	3 (6%)	47(94%)
4	Motivated critical thinking and analytical skill	0	0	0	5 (10%)	45(90%)
5	Helped fact finding and correlating principles of diagnosis and management of disease	0	0	0	5(10%)	45(90%)
6	group interaction is increased	0	0	0	6 (12%)	44(88%)
7	Gives confidence in bed side	0	0	0	5 (10%)	45(90%)

DISCUSSION

The present was conducted to compare case based learning with didactic learning in teaching orthopaedics to medical undergraduates and the student's perception about case based learning. it was found that students participated in the case based learning scored better marks than the students who participated in the didactic lecture learning. This proves the point that the CBL group gained better knowledge from the session. The results were consistent with the previous studies.[8] In traditional teaching, students are passive, whereas in CBL, one has to actively participate in group activity by increasing the group interaction. Team work is a principle of adult learning as well as an effective practice[9] In case-based learning, both construction of cases and instructors' skill are important[10,11] In this study, after the end of the CBL course the students commented favorably upon development of Interest, motivation to read more, diagnosis and treatment planning. Instructors were supposed to facilitate students' discussion, guide their clinical reasoning method, and help them to summarize key learning objectives.

CONCLUSION

Result from Post-test and the positive perceptions of students indicate that CBL was an effective teaching learning method in orthopaedics. It helps the students to apply knowledge in solving the clinical cases

REFERENCES

1. Frohna AZ, Hamstra SJ, Mullan PB, Gruppen LD. Teaching medical education principles and methods to faculty using an active learning approach: the university of michigan medical education scholars program. J Assoc Am Med Coll 2006; 81(11): 975-8.
2. Birden H, Glass N, Wilson I, Harrison M, Usherwood T, Nass D. Teaching professionalism in medical education: a best evidence medical education (BEME) systematic review. BEME Guide No. 25. Medical teacher 2013; 35(7): e1252-66.
3. Braeckman L, t Kint L, Bekaert M, Cobbaut L, Janssens H. Comparison of two case-based learning conditions with real patients in teaching occupational medicine. Medical teacher 2014; 36(4): 340-6.
4. Preeti B, Ashish A, Shriram G. Problem Based Learning (PBL) - An Effective Approach to improve learning outcomes in medical teaching. J Clin Diagn Res 2013; 7(12): 2896-7
5. Thistlethwaite JE, Davies D, Ekeocha S, Kidd JM, MacDougall C, Matthews P, *et al.* The effectiveness of casebased learning in health professional education. A BEME systematic review: BEME Guide No 23. Med Teach. 2012;34(6):e421-44.
6. Sutyak JP, Lebeau RB, O'Donnell AM. Unstructured cases in case-based learning benefit students with primary care career preferences. Am J Surg. 1998;175(6):503-7.
7. Mansur DI, Kayastha SR, Makaju R, Dongol M. Problem based learning in medical education. Kathmandu University medical journal 2012; 10(40): 78-82
8. Shin JH, Haynes RB, Johnston ME. Effect of problem based self-directed undergraduate education on lifelong learning. CMAJ. 1993;148:969-76
9. Vella J. Learning to listen, learning to teach. Team work, revised edition, San Francisco, Jossey-Bass Publishers; 2002:191.
10. Kassebaum DK, Averbach RE, Fryer GE, Jr. Student preference for a case-based vs. lecture instructional format. J Dent Educ 1991; 55(12): 781-4.'
11. Hay PJ, Katsikitis M. The 'expert' in problem-based and case-based learning: necessary or not? Med Educ 2001; 35(1): 22-6.

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