INTRODUCTION OF CASE BASED LEARNING FOR TEACHING ANATOMY IN A CONVENTIONAL MEDICAL SCHOOL

Praveen R Singh, Raksha Bhatt

Anatomy Department, Pramukhswami Medical College, Karamsad, Gujarat, India

ABSTRACT

Anatomy which forms the foundation of medical science is perceived to be a difficult and dry subject. To make it interesting and clinically useful, good understanding of anatomical basis of diseases is required. One of the important innovative methods being used to facilitate this is case based learning (CBL). We introduced case based learning for 1st year MBBS students in 2008. Keeping in mind all-round education of students, we evaluated student's feedback concerning their perceptions towards the method, its conduct & the role of facilitator to the various aspects of CBL. The time period of the study was around nine months.

One hundred students of 1st MBBS were given five paper based CBL module conducted in two sessions. The first session comprised of small group discussion amongst the students in presence of a facilitator. In the second session various groups presented their discussion outcomes. Anonymous feedback was taken from them after the end of the session & analysed.

Total 83 students responded to the feedback. The percentage of students agreeing to various questions was in the range of 51 to 87%. Group discussions during CBL were able to improve the understanding of theory taught along with better problem solving and increased interaction, as agreed upon by 62, 69 and 74% of students respectively. Facilitators were found helpful by 73%; and 71% felt it was feasible to have CBL along with lectures.

From our experience and students perceptions it can be concluded that CBL is a very good approach to initiate student centred learning. This also helps students to understand practical application of the theory taught to them.

Key Words: group discussion, case based learning, anatomy

INTRODUCTION

Anatomy is an important but difficult subject taught to the first MBBS students. Sound knowledge of the subject with clear understanding of its clinical applications is important to create strong foundation of sound clinical practice. It is well appreciated that anatomy should be learned as a dynamic subject for problem solving & application in the clinical practice towards delivery of quality health care.[1]

A large amount of knowledge does not necessarily mean the student knows that how & when to apply it for patient care. Efforts have been made to enhance understanding of the subject by various methods like interactive lecturing, problem based learning (PBL), case based learning (CBL), and project based learning. Working and learning in groups is an integral part of small group teaching and known to enhance both understanding & learning of the subject. Learning from problems is a condition for human existence. Problem based learning with its group discussion approach to problem solving, was introduced in the medical curriculum in 1969 and has been endorsed as an educational strategy by the World Federation of Medical Education and the World Health Organization.[2,3] It is an important student centric method where the knowledge is better retained with clinical context & integration from relevant discipline[4].

To ensure that students learn Anatomy with interest and are able to apply the knowledge in clinical practice, we introduced case based learning for teaching anatomy in year 2008 by formulating a module that involved paper based clinical scenario with focussed questions containing specific learning objectives. Keeping in mind the role of CBL in the all-round education of students, we evaluated student's feedback concerning their perceptions to various aspects of case based learning. Feedback was also analysed towards the method used, its smooth conduction & the role of facilitator.

PBL is embraced in many medical schools in USA & is incorporated in the curriculum at many places.[5] PBL has also been endorsed as an educational strategy by the World Federation of Medical Education.[3]

Correspondence

Praveen R Singh

Anatomy Department, Pramukhswami Medical College, Karamsad, Gujarat, India

Email: pravin_m21@hotmail.com , praveenrs@charutarhealth.org

Mobile : 09427493505,09925253218

MATERIAL & METHOD

The study was conducted in a batch of 100 students admitted to first year of MBBS in year 2008. Institutional Human Research Ethic Committee duly approved the study.

The faculty and students were oriented and introduced to the concept of CBL and group discussion. All students willingly participated in the study and no control group was formed due to ethical issues. Informed written consent was obtained from all the students.

Five paper based clinical cases and modules were prepared for various regions of the body by the trained faculty of anatomy department with clinical consultation.

The study was conducted in two sessions for each module. The first session was based on discussion of the given case with predefined objective in the form of questions in small groups. This was followed by second session after three or four days with presentations of the learning during group discussions by each group followed by final compiling of the session by the faculty. This was done to help students achieve the learning objectives.

First, the whole class dissected a particular region/part with demonstrations as was being done in the traditional way. Then students were given paper based clinical cases related to the topic and they discussed in groups of ten with a trained facilitator. They were made to sit in a circle to maintain eye to eye contact and to ensure that they followed the rules of group dynamics. The group through consensus elected the chairperson, scribe, time keeper & presenter for the group discussion. The chairperson ensured participation of each member of the group. The role of facilitator was not to lead the group but to keep the discussion on the right track by observing the whole process.

Anonymous written feedback was taken from the students at the end of the session through structured questionnaire. This was done to know their perceptions towards group discussion as a method of enhancing learning. The responses were measured in terms of agreed, disagreed or remained neutral. Written feedback was also taken from faculties of anatomy department. The time duration of the study was around nine months.

RESULT & DISCUSSION

Descriptive analysis of students responses collected through feedback questionnaire was performed. The internal consistency of feedback questionnaire was found to be very good (Cronbach's alpha score of 0.84). The response of students is shown in following table.

Student's Perception towards case based learning				
No	Question	Agreed (%)	Neutral (%)	Disagreed (%)
1	Method used in teaching case based learning in anatomy was useful	69	21	10
2	Helped in improving understanding further	62	24	14
3	Process encouraged student responsibility for the learning objectives	64	24	12
4	Brought in more interaction	74	13	13
5	Can be used along with lectures	71	15	14
6	Improve problem solving ability	69	21	10
7	Conducted in a systematic manner	64	26	10
8	Facilitators were helpful	73	18	09
9	Presentations helped to learn better	60	20	20
10	Opportunity to express	64	21	15
11	Teach other topics as well by this method	61	18	21
12	Can be continued for future batches	67	18	15
13	Will help to perform better in University exam	51	26	23
14	Will help to perform better in later days of clinical course	87	10	3

Table showing students response to the feedback questionnaire (n=83)

Eighty-three students responded to feedback questionnaire. As is evident from the table the percentage of students agreeing to most of the questions posed to them was in the range of 51 to 87%. The significance of group discussion during CBL in strengthening the clinical concepts was made evident from the response of 51% towards role of group discussion in helping the students perform better in university examination in contrast to 87% students agreeing to the perception of helping them perform better in later days of clinical course.

The conduct of case discussion was appreciated as systematic with opportunity of thought expression and doubt clearance by 64%. Sixty-two and 69% of students agreed to improved problem solving and better understanding of theory taught to them respectively. Seventy four percent of students agreed to increased interaction through group discussions.

Seventy three percent of students were of the view that facilitators were helpful while 71% agreed that CBL can be used along with lectures. Sixty-seven percent students favored continuation of CBL as a teaching learning method in other batches.

On taking faculty feedback, all of them agreed for this as a useful method, with 50% strongly agreeing towards the group discussion and its facilitation being useful, helping in increased retention & improved problem solving. They were of the view that CBL helped them in improved understanding and should be continued for further batches. This will help student perform better in University exam & latter clinical terms.

Due to unavailability of much published work the results of CBL or its component group discussion in anatomy could not be discussed. A similar study on CBL was done by Wojciech Pawlina etal[6] who got similar response from the students. In their study 82% of the students felt that these sessions were a useful method of providing clinical correlations with gross anatomy compared to about 69% of our students.

As noted by Albanese MA etal[7] & Des Marchais JE[8], most students enjoy the active participation and consider the process to be clinically relevant & stimulating similar to our case.

Diana et al[9] were of the view that students in a problem-based curriculum are provided with many clues and directions that directly or indirectly play a role in their decisions on what to study, such as reference literature, course objectives, lectures and tests. In addition, students become better self-directed learners over the four curriculum years. This can help them become lifelong learners.

In a review of study on advantages of problem based learning, Diana Dolmans et al[10] found that there is evidence towards increased retention of knowledge, enhancement of integration of basic science concepts into clinical problems, the development of self-directed learning skills, and enhancement of students' intrinsic interest in the subject matter in PBL.

In a study done by Sue Ann Miller et al1 regarding understanding of anatomy, they were also of the view that anatomy should be presented and learned as a dynamic basis for problem solving & for application in the practice and delivery of quality health care.

Rene Yiou etal[11] while analysing the example of PBL at Harvard Medical school mentioned that to see the long term effect, an evaluation needs to be done latter in the medical curriculum which also should take into consideration the ability to find an anatomical interpretation to a clinical problem.

David Vernon[12] in his metaanalysis showed a general approach showing superiority of PBL over the traditional methods. PBL also promotes interdepartmental collaboration particularly between basic & clinical scientists[13]

Satheesha et al[14] on doing a similar curricular change noted that teaching learning of anatomy suffered because of this method. Although he emphasised the importance of learning occurring through this method, but to increase its effectiveness he suggested a hybrid method. We in our study also used a hybrid method whereby we were not covering the entire syllabus in CBL but few important concepts were taken as CBL.

In his study Berkson[15] argued that PBL and traditional curricula are different concepts, and the two will gradually merge.

The emerging trend of faculty feedback in our study was similar to that observed by David Vernon[16] . in their experience faculty seem to prefer PBL in most respects though with reservations.

It is also a point to consider that most of the PBL have come from medical schools where this was done as a part of major curricular change with much enthusiasm. Therefore, it may be difficult to differentiate role of enthusiasm for the new curriculum from real gains in student learning by PBL[17]. Some of the problems that surfaced during the study as per students perception was that CBL is time consuming which was also felt by faculty. In addition,

faculties also felt need to address the inability of underperformers to fulfil the expectations of a CBL module.

Some of the difficulties faced by us during the study were like, people in general are not open for changes, it's difficult to create & sustain interest in an exercise if it's not asked in university examination. In addition, taking feedback & questionnaire from students were difficult at the end as they were having their final exams.

CONCLUSIONS

Thus to conclude CBL/PBL is a very good approach which drives student centred learning & incorporates integration and practical application of the knowledge of basic science, simultaneously helping students become lifelong learner. It can be a very useful method if taken up as a hybrid approach with traditional method.

IMPACT

Our basic aim of making the subject more interesting and contextual was achieved.

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