Problem Based Learning in I MBBS Anatomy

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Abstract: Problem Based Learning (PBL) is an instructional approach to learning where students tackle problems in small groups under the supervision of a facilitator. The main objective is to introduce PBL to I MBBS students in Anatomy, enumerate learning outcomes and compare with Traditional Didactic lecture (TDL). 80 students were divided into two groups A & B randomly. Two topics were chosen. Under each topic one group was educated by PBL & other group by TDL acting as control. Later on results were analysed by Peer reviewed Multiple Choice Questions and compared. Feedback from students was taken in the form of questionnaire. Mean±SD values were higher with PBL method of study. The P values in Topic 1 and 2 are statistically highly significant (p<0.0001). 79% of the student’s preferred PBL in their feedback forms. PBL is a better mode of teaching when compared to TDL in anatomy for certain clinically relevant topics which enhances self directed learning, Problem solving attitude and analytical skills which is statistically significant.

Key Words: Comparative study, Mean, Problem based learning in anatomy, P value, Standard deviation, Traditional Didactic Lecture

I. Introduction

The quality of medical education has attracted considerable interest during the last few years. Emerging changes in today’s society and lifestyle may require a revision in the present system of education in such a way that students of health profession are trained to deal with problems in the future, preparing themselves to become active, independent learners and problem solvers rather than more or less passive recipients of information. It gives a holistic approach with a good understanding of the regions of the body and the mutual relationship of the organs and systems.

Problem Based Learning (PBL) involves students working self-directed usually in small groups using a clinical problem as the driver to seek knowledge [1]. In such an approach Professors serve as facilitators who attempt to guide students to take responsibility for their learning [2]. This approach enables students to explore problems and engage directly with alternate views likely to be held within the group. Such approaches are believed to provide better integration of knowledge [3] as well as fostering the skills of academic self-efficacy and problem solving [4]. Indeed most of the focus on the benefits regarding PBL relating to anatomy has been on the attributes it develops such as life-long learning skills [5] and there has been little focus on actual attainment of knowledge.

The exposure of students to such a method of study in a budding institute from Telangana was the need for study. Problem Based Learning is considered as an instructional approach that may solve some of the important problems of medical education such as the difficulties encountered by students to use the knowledge gained, lack of integration of knowledge acquired in different disciplines and the need for continuing education.

II. Objectives

The main objectives of the study are
*Introduction of PBL to I MBBS students in anatomy.
*Enumerate learning outcomes.
*Comparison of PBL with regular didactic lecture.

III. Methodology

Institutional Ethical Committee of Government Medical College, Nizamabad permission was taken prior to implementation of the study and written Informed consent from students of I MBBS (2014-15 batch) was also taken. 80 students were divided into two groups Batch A & Batch B randomly. Two topics of study were chosen. Under each topic one group was educated by PBL & other group by Traditional Didactic Lecture. At the end both the groups were exposed to PBL.

<table>
<thead>
<tr>
<th>BATCH</th>
<th>TOPIC 1</th>
<th>TOPIC 2</th>
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<tbody>
<tr>
<td>A</td>
<td>Problem Based Learning</td>
<td>Traditional Didactic Lecture</td>
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<tr>
<td>B</td>
<td>Traditional Didactic Lecture</td>
<td>Problem Based Learning</td>
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Later on results were analysed by MCQ’s and compared. Later on Feedback from students was taken in the questionnaire form and analysed.

IV. Results

According to graph the mean and SD values in Topic 1 Fertilization with PBL method is 8.07± 0.73 compared from TDL 6.85 ± 1.27 ; in Topic 2 Gametogenesis with PBL is 8.47 ± 1.32 where as in TDL 7.32 ± 1.35 depicted in table 2 & 3. The P values in Topic 1 and 2 are statistically highly significant (p<0.0001) .

<table>
<thead>
<tr>
<th>Table 2</th>
<th>Topic 1</th>
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<tr>
<td>METHOD</td>
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<tr>
<td>Problem based learning</td>
<td>8.075</td>
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<tr>
<td>Traditional didactic lecture</td>
<td>6.85</td>
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<th>Table 3</th>
<th>Topic 2</th>
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<tr>
<td>METHOD</td>
<td>MEAN</td>
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<tr>
<td>Problem based learning</td>
<td>8.475</td>
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<tr>
<td>Traditional didactic lecture</td>
<td>7.325</td>
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Graph: Mean values of Topic 1 and 2 for P B L and T D L methods.

The student’s perception towards the PBL method with the help of Likert scale is represented in table II. 79% of the students preferred PBL method of teaching.

<table>
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<th>TABLE 4: Students Perception For PBL</th>
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<td>S.No</td>
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V. Discussion

The PBL method is one of the novel methods in education. Some of the conventional schools in India are incorporating components of PBL in their existing conventional curricula [6]. Problem-based learning uses real or simulated case scenarios and so is close to experimental learning. It creates the feel of a real situation so that students engage with the case if they are learning from their own experience, developing critical thinking skills as suggested by other researchers [7,8,9]. Problem-based learning also enables students to have a planned experience of cooperation, communication [10] and teamwork through small group work. Problem-based learning encourages students to actively engage with their learning through questioning, discussing and researching the problem in hand. These skills prepare students to be lifelong learners [11]. Problem-based learning also encourages reflection.

Findings of this study support evaluative literature related to PBL and deep learning as students valued the connection between theory and practice and showed improved understanding and retention of content. This is consistent with the deep learning associated with PBL reported previously[12,13,14]. According to our results, the mean score on tests which had been taught to students traditionally and via PBL demonstrate that the PBL method was probably more effective in helping students to learn the material and gain higher scores. The review of other studies demonstrated that PBL resulted in a greater score in anatomy exams in four studies [15,16,17,18]. The differences can also be observed in the mean scores of students in the examinations after traditional teaching and PBL (Graph). This demonstrates that the median and the mean obtained for these methods are in favour of PBL. These findings are comparable to those of other authors [19,20,21,22].

The p values obtained from our questionnaires demonstrated that the PBL improved student’s perception regarding their anatomical knowledge, which has also been reported by others [23]. Feedback from students commented that PBL enhanced their understanding of anatomy and motivated them to read more. PBL
enabled them to remember the subject better and helped to integrate their knowledge. All these outcomes are due to active involvement of students and motivation in teaching learning process in PBL. Most of the students expressed desire & a need to continue PBL sessions in future also. On contrary, they don’t want to replace all the lectures by PBL but suggested a hybrid method. The problem that surfaced during the study as per students perception was that PBL is time consuming which was also felt by faculty.

VI. Conclusion

PBL drives student centered learning, incorporates integration and practical application of the knowledge of basic science, simultaneously helping students to become lifelong learner. It helps in development of self centered learning, problem solving attitude and analytical skills. PBL is a better mode of teaching when compared to traditional didactic lecture in anatomy. This can be done for certain clinically relevant topics. The study in future will be extended to most of the curriculum in anatomy and analysed.

Limitations of the Study

Only small group can be taught. Requires trained facilitators. Time is a major constraint. Student’s attention has to be maintained for a long time. Only clinically relevant topics can be taught through PBL. (prior basic knowledge is necessary for the student).

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References
