Section: Biochemistry

Research

ECE ACTIVITY FOR FIRST YEAR MBBS STUDENTS AT OUR INSTITUTE

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Abstract

Background: Early clinical exposure (ECE) is a teaching-learning methodology which fosters the exposure of medical students to the patients as early as the first year of medical college. We aim ECE activity for first year MBBS students at our institute to know the effectiveness of ECE in diagnosis, patient care and treatment. **Materials and Methods:** A total of 300 students of first phase MBBS of academic years 2020 – 21 and 2021-22 were included in this study which was done in the Department of Biochemistry, The ECE program was used as a supplement to the traditional lecture for the topic, biochemical aspects of Liver Function Tests. A feedback questionnaire (including both open and close ended questions), after getting validated by the faculty were filled by the students post ECE. Students were also encouraged to give their written open comments anonymously. **Result:** A total of 300 students of first phase MBBS of were included in this study. 144 (96%) students found ECE more interesting method of teaching-learning compared to traditional lecture.129 (86%) students believed that ECE has increased their interest on Jaundice topic. 141 (94%) students felt motivated to read about Jaundice. 135 (90%) students felt that ECE has helped them to understand types of Jaundice. 28% of students strongly agreed that ECE had helped them to remember the topic better. 55% of students strongly agreed that ECE had helped them to remember the topic better. **Conclusion:** Our study supports the inclusion of ECE as a motivational tool for learning as it is effective in improving students' learning strategies, motivation to learn, and academic performance.

INTRODUCTION

Biochemistry is one of the ever-evolving life sciences in the medical curriculum, where the students are made to understand the immense importance of events that take place in human body starting from digestion of nutrients, absorption and energy production. In conventional system of medical education, biochemistry was mainly taught by using didactic lectures, tutorial and practical classes along with other subjects Anatomy and Physiology. This type of teacher centered didactic lectures makes it very difficult for students to concentrate in class, understand, retain the subject and to apply these concepts effectively in patient care.

Teaching and learning methods play a major role to make learning easier. So these days, education system has been changed to a student centered teaching-learning process. The main purpose is to make students actively involved in process of learning and to make them prepared for lifelong self-directed learning process. Recently NMC in 2019 has developed competency- based curriculum which aims to produce medical graduates of global standard through curricular reforms. ECE ensures introduction of clinically relevant material in the class, integrated knowledge of basic sciences and clinical sciences and observation of doctor-patient communication at the very first year so that all the three domains – cognitive, psychomotor and affective of a medical student will be improved. ECE helps in improving performance of fresh medical student entrants in basic science and helps to relieve stress pertaining to patient handling. ECE develops clinical reasoning and helps to produce good learning outcomes.[1,2,3]

So to interact students with clinical environment, we planned an ECE activity for first year MBBS students at our institute to know the effectiveness of ECE in diagnosis, patient care and treatment.

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MATERIALS AND METHODS

A total of 300 students of first phase MBBS of academic years 2020 – 21 and 2021-22 were included in this study which was done in the Department of Biochemistry, NRIIMS, Sangivalasa. The ECE program was used as a supplement to the traditional lecture for the topic, biochemical aspects of Liver Function Tests. The program constituted of case-based lecture with the help of slides showing pictures of jaundice, with exposure to a clinical case in the hospital. The case-based lectures were taken at the lecture hall with the help of LCD projector. After the brief lecture students were taken in small groups to the Paediatrics department in the hospital. 3 days old baby having jaundice was shown to the students in the NICU and later they were taken to the Biochemistry lab where related tests to Jaundice were shown along with procedure.

Data Collection

Selection of topic was done with an intention to expose the student to a variety of learning experience involving the two domains of learning mainly the cognitive and affective. The learning objectives for the session was chosen carefully in view of students prior knowledge and the availability of clinical material. Based on the learning objectives questionnaire was formulated for the session. The topic selected for ECE was Hyperbirubinaemia. After briefing about ECE, informed consent was taken from all 150 students. Questionnaire which included both open and close ended questions was distributed and feedback was collected from the students after completion of ECE session. The questionnaire was meant to assess the impact of program on the students.

A feedback questionnaire (including both open and close ended questions), after getting validated by the faculty were filled by the students post ECE. Students were also encouraged to give their written open comments anonymously.

Data Analysis

All Likert's scale responses were categorized into either positive (strongly agree, agree) and negative responses (neutral, disagree and strongly disagree).

S. No.	Questions	1 (Strongly disagree)	2 (Disagree)	3 (Neither agree nor disagree)	4 (Agree)	5 (Strongly agree)
1.	ECE is more interesting method of learning compared to traditional teaching –learning methods.					
2.	ECE has increased my interest on topic.					
3.	ECE motivated me to read more about jaundice.					
4.	ECE helped to understand types of jaundice.					
5.	ECE helped me to remember the topic better.					
6.	ECE helped me to correlate bilirubin levels with types of jaundice.					
7.	ECE helped me to know the importance of biochemistry.					
8.	ECE helped me to differentiate physiological causes of jaundice from pathological causes					
9.	ECE helped me to understand signs and symptoms of hyperbilirubinemia.					
10.	ECE is a better learning tool to understand LFT					
11.	ECE should be incorporated as a teaching learning method (Y/N)					
12.	Enlist 3 good points about ECE as a teaching learning method.					
Any other suggestions:						

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RESULTS

Table 1: Feed Back Questionnaire 1-4

Question	Negative response	Positive response
ECE is more interesting method of learning	13	287
ECE has increased my interest	31	269
ECE motivated me to read more about jaundice.	28	272
ECE helped to understand types of jaundice.	35	265

Table 2: Feed Back Questionnaire 5 – 2020 – 2021 MBBS First Year Batch

Question	Agree	Strongly agree
ECE helped me to remember the topic better.	72%	28%

Table 3: Feed Back Questionnaire 5 – 2021-2022 MBBS First Year Batch

Question	Agree	Strongly agree
ECE helped me to remember the topic better.	45%	55%

Table 4: Feed Back Questionnaire 6-10

Question	Negative	Positive
ECE helped me to correlate bilirubin levels with types of jaundice	65	235
ECE helped me to know the importance of biochemistry	65	235
ECE helped me to differentiate physiological causes of jaundice from pathological causes	41	259
ECE helped me to understand signs and symptoms of hyperbilirubinemia.	25	275
ECE is a better learning tool to understand LFT	37	263

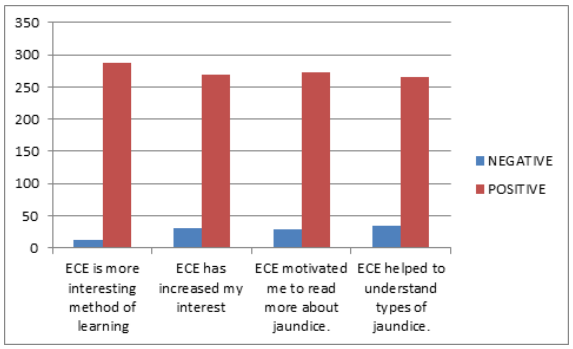

Figure 1: Feed Back Questionnaire 1-4

144 (96%) students found ECE more interesting method of teaching-learning compared to traditional lecture.129 (86%) students believed that ECE has increased their interest on Jaundice topic. 141 (94%) students felt motivated to read about Jaundice. 135 (90%) students felt that ECE has helped them to understand types of Jaundice.

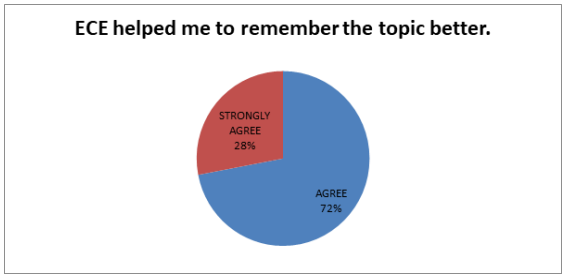

Figure 2: Feed Questionnaire 5

28% of students strongly agreed that ECE had helped them to remember the topic better.

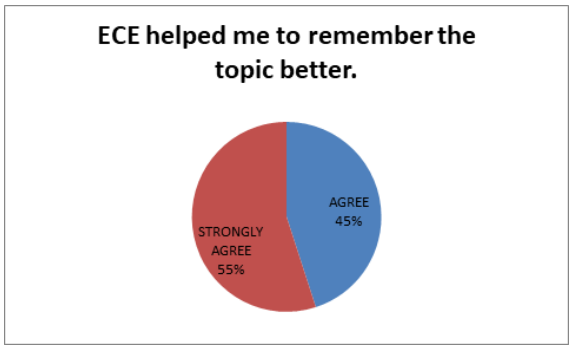

Figure 3 Feed Questionnaire 5

55% of students strongly agreed that ECE had helped them to remember the topic better.

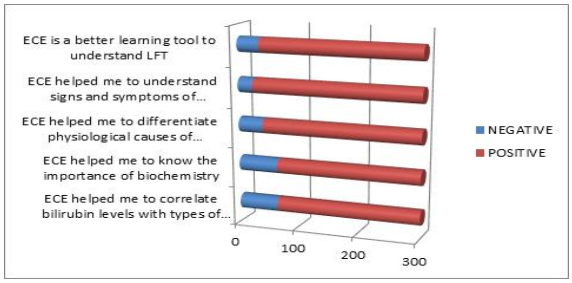

Figure 4: Feed Back Questionnaire 6-10

All the students agreed that ECE should be incorporated as a teaching learning method in the 1st year MBBS curriculum.

Students comments about ECE in Hyperbilirubinemia:

- Increased the students interest on the topic.
- Better than classroom-based learning
- Helped to understand signs and symptoms of jaundice
- Request for increase in number of ECE sessions.

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- Experience of Doctor vibes because of ECE session.

DISCUSSION

Didactic lecture is teacher-centered, unidirectional, and less interactive. This conventional mode of T-L creates a wide gap between the preclinical and clinical years. Therefore, in a need-based approach, the MCI, the regulatory body of medical education in India, has implemented competency-based medical education curriculum, which necessitates the need for clinical teaching from very 1 year onward. ECE allows higher order of thinking, covering higher levels of cognitive domain – application, analysis, synthesis, and evaluation.[4] This kind of learning may enable student to interpret clinical findings on the basis of basic concept of first professional subjects such as clinical or applied biochemistry.

In the present study, we wanted to know the impact of ECE in 1st year MBBS students in the department of Biochemistry. We carried the session of ECE targeting biochemical aspects of Liver Function Tests with the help of slides, clinical case exposure and laboratory reports. 129 students out of 150 felt that ECE increased interest on the topic, was more interesting than classroom lecture. These findings are in accordance with the study of Rawekar et al,[5] which reported students giving good feedback about ECE. Also this findings are in accordance with the study conducted by Chari S et al,[6] in which the students were positive about ECE and were full of enthusiasm.

120 students reported that ECE has helped them in correlating bilirubin levels with different types of jaundice and 144 students stated that ECE is more interesting method of learning and it, should be used as a method of T-L along with regular lectures in Biochemistry, a finding consistent with the study done by Kumar et al.[7] Correlating applied biochemistry by ECE will enable students to understand the relevance of underlying scientific knowledge and principles of clinical medicine. The apparent benefits of ECE include exposure to the health care system, increased motivation for classroom learning.[8] ECE forms crucial part in the initiation of students into medicine.[9]

In a European survey conducted by Başak et al,[10] found that observation, small group teaching, clinical bedside teaching, supervision, and feedback, reflective journal writing, self-learning, case-based learning, lectures, and shadowing were common teaching and learning activities in ECE programs. Başak et al,[10] concluded that ECE training mostly takes place in primary care settings, general practice clinics, department outpatient clinics, and hospital wards, with only a few programs taking place in the community.

Limitations

The limitation of the study was about the time constraints in first year MBBS Biochemistry. Also, first year are not thoroughly aware of pathology and medical aspects of a clinical case. Hence all the aspects of a clinical case cannot be discussed at this level. The challenge for health professions education is to look for ways to improve the quality of clinical education by comparing students' understanding and modifying the practices of clinical education in new circumstances. Early clinical experience will definitely play an important role in this context.

CONCLUSION

From the present study we found ECE has profound impact on students interpretation skills and scientific approach to Laboratory diagnosis. It also increased their interest in subject. This program if implemented effectively has the potential to be ideal first step in making of a holistic doctor.

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