

Research Article**Importance of Early Clinical Exposure in Learning Anatomy****Sharadkumar Pralhad Sawant^{1*}, Shaheen Rizvi²**¹Professor and Head, Department of Anatomy, K.J.Somaiya Medical College, Somaiya Ayurvihar, Eastern Express Highway, Sion, Mumbai-400 022, Maharashtra, India²Assistant Lecturer, Department of Anatomy, K.J.Somaiya Medical College, Somaiya Ayurvihar, Eastern Express Highway, Sion, Mumbai-400 022, Maharashtra, India***Corresponding author**

Dr. Sharadkumar Pralhad Sawant

Email: drspasawant@gmail.com

Abstract: Anatomy is one of the basic science disciplines in the medical undergraduate curriculum and forms the foundation for the training of future doctors. It not only involves a vast curriculum but for some students it is a complex and dry subject. To make it interesting, a lot of educators are of the opinion that knowledge of Anatomy should be acquired in a situation resembling those in which it will be applied. MCI (Medical Council of India) in its 'VISION 2015', has introduced a restructured curriculum and training program for undergraduate teaching with emphasis on early clinical exposure, integration of basic and clinical sciences, clinical competence and skills and new teaching learning methodologies. This according to MCI, will lead to a new generation of medical graduates of global standards. In the present setup, in the undergraduate curriculum, students are exposed to clinical subjects only during the second year. However, it has been observed that students find it difficult to recollect essential basic concepts during clinical postings. To improve this scenario, it has become necessary to introduce the students to clinical problems within the first undergraduate year itself, as advocated by the MCI. As medical education continues to advance, it is the endeavour of educators as well as MCI, to attempt to prepare students for their professional lives. Early clinical exposure (ECE) will help students to develop a professional identity, increase motivation to learn, ensure well integrated knowledge of the basic sciences so as to retain knowledge better and even consider career options earlier. ECE also promotes self-directed learning and analytical skills in students. ECE is a useful method for a basic science like anatomy if it is taken up with the traditional teaching method. Anatomy will be better understood, retained and later practically applied, if learned in a clinically significant set-up.

Keywords: Anatomy, Medical undergraduate Curriculum, Medical Council of India (MCI), Early Clinical Exposure (ECE), Integration of basic and clinical sciences, New teaching learning methodologies.

INTRODUCTION

In the present setup of the undergraduate medical curriculum, students are exposed to clinical subjects only during the second year. However, it has been observed that students find it difficult to recollect essential basic concepts during clinical postings [1]. The reforms in 'VISION 2015' of MCI (Medical Council of India) focus on enhancing integration, clinical competency, flexibility and improvement in quality of training. One such reform is the introduction of ECE [2]. Early Clinical Exposure (ECE) is a teaching- learning methodology, which promotes exposure of the medical students to the patients as early as the first year of medical college [3].

A basic science like anatomy should be learned as a relevant subject, for application in the clinical practice. Gaining a vast amount of knowledge may not always mean that the student will be able to apply that knowledge in a clinical setup or in patient

care. An ideal knowledge of Anatomy will be a clear understanding of its clinical applications, and will subsequently lead to a sound clinical practice. Hence Anatomy would be better understood, retained and later practically applied, if learned in a clinically significant set-up [4]. Introducing clinically relevant material along with didactic teaching will most likely result in the information being retained longer by the student. The goals of ECE are to provide significance to basic sciences along with expansion of medical knowledge so as to establish the cognitive component of professional learning [5]. Concurrently, the students will develop some fundamental clinical skills as well as a moral attitude (to practice with integrity and respectability). All this will help the students to overcome their pressures and anxieties and motivate them to develop a better insight into the medical profession [6]. It will also lead to a positive influence in the attitude of the student towards medical education which will help them to achieve social as well as professional satisfaction [7].

As students face eternally growing amount of information in the medical sciences, ECE will increase their exposure to clinical problems and thus prepare them to be up-to-date physicians throughout their careers [8].

OBJECTIVES OF ECE

- To increase the interest of the students in basic sciences.
- To boost the integration of basic and clinical sciences
- To create awareness for learning process in the student, thus making teaching learning methods more interactive & student centered.
- To generate understanding of a clinical setup early in their medical education
- To augment problem solving skills, analytical skills and knowledge.
- To enhance the achievement of knowledge in students
- To increase satisfaction among students about teaching learning process.
- To build a habit of self directed learning for improved understanding [9].
- To perceive the finer aspects of human behaviour while dealing with patients [10].

SETTING UP OF ECE

ECE can be set up either in a classroom, or in a hospital or even in the community .

Classroom

Case discussions can be brought to the class room, in the form of paper cases, Laboratory reports, photographs, radiographs and even ECGs. Sometimes if a patient is willing and co-operative, even he can be brought to the classroom and introduced to the students [11].

Hospital

The students can be taken for rounds in the OPDs and wards for a substantial hospital experience so as to familiarise them with a clinical environment early in their medical education. This will also create awareness in them regarding the conditions of the patients, the conventions to be followed while working in a ward and the process of history taking. They can also observe the doctor-patient communication strategies. Consenting patients can also be selected to be visited by the medical students. The learning objectives need to be stated clearly, so that the student knows who to observe, what to observe and what to report back [12, 13].

Community

The focus of community based early clinical exposure should be on letting the students learn about how people live, how their living conditions influence health and disease, and their need for health services. Students can see primary care providers at work [14].

Community visits and primary care attachments strengthen medical students' understanding of the responsibilities of doctors and other health professionals, and the importance of good communication. They become more confident to meet patients. Community visits also help students understand behavioural and social sciences, and recognize the ethical dimension of patient care and doctor-patient relationships. Students will get the opportunity and the responsibility to look beyond the signs and symptoms of the patients they see, so that they can prevent disease and promote health in the community. Community visits teach knowledge that cannot be learned from books [3].

INCORPORATING ECE IN THE CURRICULUM

In the undergraduate curriculum in India, anatomy is taught region wise, therefore ECE can be incorporated in the curriculum after completion of each region.

Method 1: Classroom Setting

After concluding the study of a region, a problem based on the applied aspect of that region can be given to the students. Learning objectives should be set and the students should be informed in advance, that they have to meet these learning objectives [15]. The students are divided into groups and the same problem is posed to all the groups. A faculty member is assigned to each group. Each group can also select a leader whose job is to ensure participation of all the members of the group during discussions. In the first session, there is discussion of the given case and the groups raise questions on what they need to know to understand the problem so as to enable them to meet the desired learning objectives. They are then made to discuss and extract learning areas for study, from the given problem. The students study the different learning areas which they have identified, either from textbooks, or their concerned faculty. This is then followed by second session after three or four days in which they present what they have learnt during the group discussion. If any learning area is left, it is further analysed and again presented in the third session. This can be repeated till the student gets complete information about the problem and the learning objectives are met [16, 17].

Method 2: Hospital Setting

A group of students are trained directly in a clinical OPD or ward by a faculty of that particular clinical department. For e.g after completion of the study of Upper limb region, students can be taken to the surgery OPD or ward, where they can be taught about Breast carcinoma. The faculty of the surgery department introduces the case to them, discusses anatomy as well as physiology of breast and demonstrates clinical examination of breast as well as axillary lymph nodes. The students are then taught about signs and symptoms, stages of cancer and disease

management. If the patient is co-operative, some students can also be allowed to clinically examine the patient under supervision of professor of surgery [18].

PROBLEMS ENCOUNTERED IN ECE

ECE is a time consuming method and cannot be applied to each topic of gross anatomy as tenure of first M.B.B.S. is only one year and three basic subjects have to be covered. Hence although it is a very effective teaching-learning method, it cannot replace the lectures. To increase its efficacy, there should be a hybrid method, whereby the entire syllabus is not covered, but ECE is used only for a few important and common conditions [19]. Some students who are academically weak find it difficult to live up to the expectations of an ECE module. At times it may become difficult to generate and uphold the concentration of the student in ECE, at the time of approaching university exams as it is not asked in the university examination. Another challenge that can be encountered during ECE are identifying and coordinating with supportive clinical departments and cooperative patients [20]. ECE consumes more manpower, infrastructure and extra efforts on the part of the faculty which is another drawback. Identifying clinically relevant core content and framing its learning objectives is also a challenge for the faculty and may require training before being executed [11]. Sometimes ECE can create confusion in the minds of the student, because a disease can effect multiple systems at the cellular level, so to study about any disease not only is anatomy and physiology essential but also the pathology affecting various organs is important. As the students do not have knowledge of pathology, it can create confusion [21].

CONCLUSION

ECE is a useful method for a basic science like anatomy if it is taken up with the traditional teaching method. Anatomy will be better understood, retained and later practically applied, if learned in a clinically significant set-up. ECE helps to improve understanding, develop problem solving skills & increases interaction. Retention of knowledge is better due to integration of basic science and clinical science and development of self directed learning skills. The students get a feeling of being in a medical institute. It helps to develop attitude and professionalism. It is a better learning methodology than traditional teaching alone. But there are some draw backs like consumption of more manpower, infrastructure, time and extra efforts on the part of faculty along with problems like coordination with clinical departments. ECE sessions can be carried out in the classroom, in the hospital or even in the community. Students who visit the community are better able to relate to patients and communicate empathy.

ACKNOWLEDGEMENT

Authors are thankful to Dean Dr. Geeta Niyogi Madam for her support and encouragement. Authors are

also thankful to Mr. M. Murugan for his help. Authors also acknowledge the immense help received from the scholars whose articles are cited and included in references of this manuscript. The authors are also grateful to authors / editors / publishers of all those articles, journals and books from where the literature for this article has been reviewed and discussed.

REFERENCES

1. Ebrahimi S, Kojuri J, Ashkani-Esfahani S; Early clinical experience: A way for preparing students for clinical setting. *GMJ*, 2012; 1(2): 42-47.
2. MCI Booklet; Vision 2015. Available from http://www.mciindia.org/tools/announcement/MCI_booklet.pdf
3. Elizabeth K; Observation during early clinical exposure- an effective instructional tool or a bore. *Medical Education*, 2003, 37(2): 88-89
4. Dornan T, Bundy C; What can experience add to early medical education? Consensus survey. *British Medical Journal*, 2004; 329: 834-837.
5. Dyrbye LN, Harris I, Rohren CH; Early clinical experiences from students' perspectives: A qualitative study of narratives. *Academic Medicine*, 2007; 82(10): 979-988.
6. Vyas R, Sathishkumar S; Recent trends in teaching and learning in physiology education early clinical exposure and integration. *International Journal of Basic and Applied Physiology*, 2012; 1(1): 175-181.
7. Michalec B; Clinical experiences during preclinical training: The function of modelled behaviour and The evidence of professionalism principles. *Int J Med Edu.*, 2012; 3: 37-45.
8. Barrows HS, Tamblyn RM; *Problem-Based Learning: An Approach to Medical Education*. Springer Publishing Company, New York, 1980.
9. Dope SA, Mungal SU, Kulkarni PR; Introducing problem based learning for first MBBS anatomy students. *Int J Health Sci Res.*, 2013; 3(4): 50-56.
10. Chari S, Gupta M, Gade S; The early clinical exposure experience motivates first year MBBS students: A study. *Int J Edu Sci.*, 2015; 8(2): 403-405.
11. Tayade MC, Bhimani N, Kulkarni NB, Dandekar KN; The impact of early clinical exposure on first M.B.B.S. students. *International J. of Healthcare and Biomedical Research*, 2014; 2(4): 176-181.
12. Dornan T, Littlewood S, Margolis SA, Scherpbier A, Spencer J, Ypinazar V; How can experience in clinical and community settings contribute to early medical education? A BEME systematic review. *Medical Teacher*, 2006; 28(1): 3-18
13. Lateef F; Simulation-based learning: Just like the real thing. *J Emerg Trauma Shock*, 2010; 3(4): 348-352.
14. McLean M; Sometimes we do get it right! Early clinical contact is a rewarding experience. *Educ Health (Abingdon)*, 2004; 17(1): 42-52.

15. Abramovitch H, Shenkman L, Schlank E, Shoham S, Borkan J; A tale of two exposures: a comparison of two approaches to early clinical exposure. *Educ Health (Abingdon)*, 2002; 15(3): 386-390.
16. Pawlina W, Romrell LJ, Rarey KE, Larkin LH; Problem-based learning with gross anatomy specimens: One year trial. *Clinical Anatomy*, 1991; 4: 298-306.
17. Singh PR, Bhatt R; Introduction of case based learning for teaching anatomy in a conventional medical school. *J Anat Soc India*, 2011; 60(2):232-235.
18. Yiou R, Goodenough D; Applying problem –based learning to the teaching of anatomy; the example of Harvard Medical School. *Surg Radiol Anat.*, 2006; 28(2): 189-194.
19. Satheesha N, Komattil R, Nagabhooshana S, Kuvady LB; Teaching anatomy in a problem –based learning (PBL) curriculum. *Neuroanatomy*, 2006; 5: 2-3.
20. Vernon DTA; Attitudes and opinions of faculty tutors about problem – based learning. *Acad Med.*, 1995; 70(3): 216-223.
21. Baheti SN, Maheshgauri D; Early Clinical Microexposure (Ecmix) (A Path From Early Clinical Micro Exposure to Early Clinical Macro Exposure (Ecmix)), *Global Journal For Research Analysis*, 2015; 4(3): 1-2.