Implementation of Early Clinical Exposure (ECE) in Preclinical Teaching

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Abstract:

Nowadays medical education for preclinical years is usually emphasizing on early exposure to clinical learning. This way of teaching can make medical students realize the importance of knowledge in the preclinical years for taking care real patients while on clinical years. This activity can lessen boring of medical students in the limited preclinical classroom and able to make correlation of preclinical and clinical. ECE can inspire medical students to pay more attention to learning in order to become physicians in the near future. ECE should have various ways, not be obligatory to medical teachers, can be blended with daily clinical service of the teachers, utilize existing hospital resources and should be modified to related curriculum in preclinical years. In this paper, the authors would like to share experience of implementing ECE in preclinical subject "Hematology and Lymphoreticular System" for medical students of Mae Fah Luang University.

Keywords: Early Clinical Exposure, Preclinical Teaching, Hematology and Lymphoreticular System

Introduction

In Thailand, it takes six years to receive medical degree (M.D.). The first three-year study consist of premedical in the first year, preclinical in the second and third year. Then they will be in the clinical year for three more years during the fourth to sixth year (externship). After graduation, they will mostly practice in the provincial hospitals for 1-3 years before coming back for specialty training 3-5 years depending on specialties and then 2 more years for subspecialty training. The life in preclinical years is quite monotonous, medical students spend their time mostly in the classroom and sometime laboratory. They have less chance to see the real patients. Some students are bored with this situation and drop out of school. Before admission in medical school, most students pledge they want to help people, patients and social. While in the medical school, many

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students only want to make diagnosis and give the treatment. They do not realize the importance of preclinical knowledge which is the important basic for the clinical life.

ECE (early clinical exposure) is basically "A teaching and learning methodology which fosters exposure of medical students to patients (actual human contact) as early as the first year of medical college, in a social or clinical context that enhances learning of health, illness or disease, and the role of the health professional."[1] ECE sessions motivate the medical student in various ways making their academic strong, improve clinical skills, improve communication skills, and making them more confident.[2,3] So many medical schools in the present time encourage the preclinical curriculum to have ECE for many purposes. ECE will inspire medical students to pay attention to the study to become doctors in the near future, can show real life of medical teachers, residents and students in clinical years making preparedness for clinical years. ECE will moreover make conceptually correlation between preclinical and clinical knowledge.

At School of Medicine, Mae Fah Luang University, the preclinical curriculum consists of block of system, such as musculoskeletal, respiratory, gastrointestinal, reproductive, cardio-vascular, neurological, and hematology-lymphoreticular. Most of them takes 2-4 weeks depending on the credit. ECE is not an interesting issue in our medical school because of increased workload and Medical Center Hospital-Mae Fah Luang University (MCH-MFU) is not in the campus but about five kilometers from the preclinical building. Because hematology-lymphoreticular system is important and has clinical correlation teaching by paper cases. So, we would like to apply ECE in the teaching in order to make the students have chance to learn with the real patients.

Methods

Hematology-lymphoreticular system (HLS) in this semester (1/2021) was for the third year medical students and we have 30 students in this block. We had 3 weeks for HLS, which consisted of lecture, case discussion (paper), peripheral blood demonstration. We were teaching the students by onsite lecture in the first two weeks to give the knowledge about common hematologic diseases in Thailand regarding to pathophysiology and basic treatment. This year we added ECE in the third week by using half day at the hospital (MCH-MFU) and half day in the preclinical classroom.

In the morning we met the students at outpatient hematology-oncology clinic at 9 AM. We divided medical students to six groups, 5 students in each group. We prepared 6 patients who had regular appointment on that day, each patient had hematologic



Figure 1 Medical students were taking history (A, B)
Basic physical examination by teacher (C)



Figure 2 Prepare blood smear (A) and Wright staining (B) of the patients whom students had previously taken history



Figure 3 Learning laboratory operation and blood transfusion service (A, B) at Medical Center Hospital-Mae Fah Luang University



Figure 4 Presentation case the students attended in the morning (A, B, C)



Figure 5 The students explained blood smear findings (A), gave correlation (B) and differential diagnosis (C)

disease such as thalassemia, iron deficiency anemia, and plasma cell myeloma. Each group would take one hour for the medical history and basic physical examination by supervision of teacher. Then the students visited to the central laboratory learned and prepared peripheral blood smear (PBS) with Wright staining of the patients they had previously seen. Besides, they had learned the laboratory operation such as hematology, coagulogram, clinical microscopy, immunology, chemistry, and COVID-19 test. For blood transfusion service, they also learned ABO cell/serum grouping, conventional tube test and automated method. After completion of the morning activity, they went back to the preclinical classroom to interpret the abnormal findings in PBS and giving correlation with history and physical findings of the patients in the morning and finally making the initial diagnosis with explanation. During the presentation of each group, the medical students showed their capacity in gathering and formulation of clinical findings and data from peripheral blood smear and most of them were able to make a right diagnosis. In group with wrong diagnosis, the medical teacher would correct them right away and tried to make them get through to the right way of thought. For evaluation of this block, the students had a good impression with learning real patients, they also showed compassionate and wished them to do better or even to be cured. They also had some experience in taking history and basic physical examination which they expected to learn deeply in the clinical years.

Limitation

This ECE of HLS needed more clinical teachers to get high quality of teaching because we had only two in-house clinicians, one hematologist and the other one clinical pathologist. We also had limited time to do this activity. We suggest other block can do ECE depending on their topic, such as in cardiovascular system, they can take the students to the heart clinic. For musculoskeletal system they can do the similar way in orthopedics or rehabilitation clinic. Planning of ECE in real-time practices can be done at different setting with the use of appropriate resources such as log book, textbooks, notes, instruments, learning material, case record sheets, and computers.[4] We also suggest that ECE should be flexible, modifiable, and tailor-made in each system not one size fits all. We do not aim for great results but only want the students to get experience and good impression in taking care of patients and finally to have basic conceptual thinking and correlation between preclinical and clinical knowledge.

Conclusion

The authors have implemented ECE in block hematology-lymphoreticular system in preclinical year and suggest perform this activity in other block system as much as possible. The medical teachers should have this same concept to make ECE as another tool for successful medical education.

Conflict of interest

The authors have declared no conflict of interest.

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