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Effectiveness of early clinical exposure module on the surgical performance of Ist year MDS students in the subject of periodontics

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Abstract

Background: Traditional lectures and power point presentations are routinely employed as a means of transmitting knowledge and skills are learnt by demonstration of procedure to small groups. ECE is a teaching learning methodology, which fosters exposure of the medical students to the patients as early as the first year of medical college.

Aim and objective: To evaluate the effectiveness of ECE on the surgical performance of Ist year postgraduate students in the department of periodontics.

Material and method: The knowledge and skills of Ist year MDS students trained using conventional didactic lectures compared with those trained with a combination of didactic lectures and ECE module. Using the OSPE stations, ECE module is better understood, retained and later practically applied.

Conclusion: If learned in a clinically significant set up ECE helps to improve understanding, develop problem solving skills and increases interaction

Keywords: clinical exposure module, surgical performance and periodontics

Introduction

Traditional lectures and power point presentations are routinely employed as a means of transmitting knowledge and skills are learnt by demonstration of procedure to small groups. Students fail to recall basic scientific concepts related to clinical fields. Thus questioning the efficacy of academic education imparted. Students also experience anxiety during the transition from preclinical to clinical years. It is therefore recommended that students should be introduced to clinical environment in the early years of their course. So that they understand the importance of pre-clinical techniques. ECE is an “Authentic human contact in a social or clinical context that enhances learning of health, illness and disease and the role of the health professional [2]. There is evidence showing that early clinical ECE is one of the reforms proposed in the Medical Council of India (MCI) VISION 2015 document for restructuring of undergraduate medical education. ECE facilitate students transition to the clinical phase, develop professional identity, increases motivation, makes aware of the application of basic sciences and boost their confidence to handle their patients problems in practice [2]. ECE is a teaching learning methodology, which fosters exposure of the medical students to the patients as early as the first year of medical college [3].

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 [3]. The students will develop a better clinical skills as well as overcome their pressures and anxieties and motivate them to develop a better medical professional. ECE in medical education is well established but there is a lack of data related to its effectiveness in dental education. 1st year post graduate students develop their surgical skills on patients in their second year. They are not exposed to the surgical skills in under graduation and nor in 1st year post graduation. Therefore the study was carried out with an aim of testing the effectiveness of ECE on the surgical performance of 1st year postgraduate students in the department of periodontics.

The objective was to compare the knowledge and skills of 1st year postgraduate students trained using conventional didactic lectures with those trained with a combination of didactic lectures and early clinical exposure module and also assess the perception regarding ECE.

Review of literature

1. Chinmay Shah (2018): IN the 20th century came the 'flexner Report" also called as the Carnegie Foundation Bulletin Number Four in 1910- the pedagogic pattern of training in medical schools. In 21st century conceptions of Professionalism are much broader. Doctors must communicate well, respect their patients wishes and needs. In 1993 the UK GMC advocated introducing students to clinical medicine early in their studies to make teaching more practical, relevant, stimulating, and reinforcing the vertical integration between basic and clinical disciplines. Many countries have already started implementing ECE in 32 of the 40 medical schools,
1. Indonesia. ECE during the preclinical years reduced difficulties encountered by students during the clinical year. Nepal, ECE is offered to first and second year undergraduate medical students who follow an integrated, organ system based curriculum and student feedback has been positive. In India MCI has recommended UG group - Foundation course, ECE1., integration vertical and horizontal, skill training/ competency based training, skill labs,
2. Dr. Seema Sathe *et al.* (2016) [4]: Perception of second BDS Students about Early Clinical Exposure in Prosthetic Dentistry. The Pilot study was used to explore the impact and reflections of dental students about early didactic and clinical experience. The results showed high clinical relevance and have a positive effect on student with respect to quality of learning environment itself.
3. Shigli K *et al.* (2017) RCT was conducted among 84 second year students in a dental college. Control group received didactic lectures and Test group received didactic lectures +video of the clinical procedure. Knowledge of subjects in both the groups was assessed before after the intervention using MCQ while skills were assessed after intervention using OSPE. ECE has a positive effect on the scores of students.
4. Srabani Bhattacharya *et al.* (2016): ECE to first year medical students through case based learning in endocrine physiology was done. Statistically significant results were found between the two groups.

Aim: To evaluate the effectiveness of early clinical exposure module on the surgical performance of 1st year MDS students in the subject of periodontics.

Objectives

1. To compare the knowledge and skills of 1st year MDS students trained using conventional didactic lectures with those trained with a combination of didactic lectures and ECE module.
2. To assess the perception regarding ECE.
3. To explain and demonstrate the steps in periodontal flap surgeries by various teaching learning methods

At the end of the course student shall be able to:

Learning outcomes

Short

1. Improves the learning of the student regarding the periodontal flap technique with the help of ECE and TL Method.
2. Improves the psychomotor skills of students on the models.

Intermediate

1. Improves the learning and understanding of the periodontal flap techniques of the student.
2. ECE aids in diagnosis and surgical treatment implied.
3. Improves the student's psychomotor skills on the models.

Long term

1. In depth understanding of the steps of periodontal flap techniques to the students with ECE.
2. Helps in better treatment implied to the patients.
3. Improves the psychomotor skills of the students on the patients.

Inclusion Criteria

1. 1st yr MDS Students 6 in no from Department of Periodontics.

Exclusion Criteria

1. 2nd and 3rd year post graduate students, Dept. of Periodontics.

Materials and Methods

Study Type: Observational

Study design: observational Analytical cross sectional

Sample size: 6

Sample source: 1st year MDS students, Dept of Periodontics: MGV Dental college and hospital Nasik.

Inclusion criteria: 1st year MDS students, Dept. of Periodontics.

Exclusion criteria: 2nd and 3rd year MDS students, dept. of Periodontics.

This study was a Randomized Controlled Trial conducted among 1st year post graduate students, dept. of Periodontics in a dental college after obtaining ethical clearance from the IRB and permission from the Dean.

The purpose of the study was explained to the subjects. Written informed consent regarding the voluntary participation was taken. Total 6 students divided into 2 groups-

Group 1- Lecture group (control)

Group 2- Lecture + video + model group (test)

In each group, discussion was carried out by periodontics faculty to determine the difficulties encountered during the process of learning and performance of the periodontal surgical procedure. In the groups 1 only steps to be performed in periodontal flap surgeries were revealed. While in group 2 students trained with help of newly designed the ECE module. ECE module consist of-

1. MCQ: Pretest and post test
2. OSPE
3. PowerPoint lectures
4. Videos of the surgical procedures.

Learning strategies

1. Lectures session regarding the type of flap surgery to be demonstrated: 2hr
2. Videos session regarding the type of flap surgery to be demonstrated: 1hr
3. Practical model demonstrations session regarding the type of flap surgery to be demonstrated: 2hrs.
4. OSPE: Steps in periodontal surgical procedures: properly done/ partially done/ not done.
5. Assessment: MCQ: 1hr pretest and 1 hr posttest.

Feedback methods

1. Perception at the end of the ECE module.
2. Feedback at the end of the ECE session by pre and posttests.

Design of objective structured practical examination (OSPE) Stations.

1. What are the types of incisions: understood completely/ understood partially (2mks)
 2. Does Model demonstration help in learning and defining skills: yes/ no. (2mks)
 3. Does Video demonstration help in learning and defining skills: yes/no (2mks)
 4. Demonstration of incisions.: completely given/ partially given (2mks)
 5. Raising a full thickness flap or partially thickness flap.: completely reflection done/partially reflection done (4mks)
 6. Debridement done completely/ incompletely(2mks)
- Examiners Evaluation: Excellent/ Good/Pass/Fail.
Student feedback regarding ECE was obtained at the end of the module using self-designed proforma based on Likert scale: Agree/ disagree/ neutral.

Results

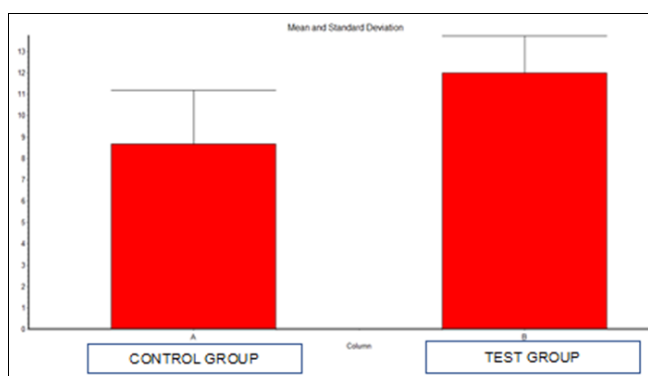
A total of 6 Ist Year post graduate students participated in the study. Among them 3 belong to the control (Lecture) group and 3 belong to test (Lecture + video + model) group. Comparison of knowledge Pre Score between control (Lecture) and study and (lecture +video) group was done. Pre intervention: Results: (Table 1.)

Pre-test scores showed no statistically significant difference between the control and test groups. (Graph 1).

Post test scores showed statistically significant difference between the control and test group. (Graph 2)



Graph 1: Posttest group (Control) VS posttest group (test).



Graph 2: Mean-Control group and test group

Discussion

Early Clinical Exposure (ECE) is a learning methodology which fosters exposure of the medical students to the patients as early as the first year of the medical college. In ECE students can play 4 roles: Passive observer, Active observer, Actor in Rehearsal, Actor in Performance. Irrespective of what form of ECE is chosen it provides a "Spiral integrated model": a consistently graduated clinical and preclinical exposure throughout the time a student is in medical college. Incorporating Kolb's Learning Theory in ECE promote active learning through self-reflection and participating in case discussions.

Students direct involvement in to learning processes develop their ability to possess and use analytical skills to conceptualize experience and to utilize their decision making skills when presented cases during their clinical practice as suggested by Lisco and O'Dell. 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. 1

The lecture format is still the most widely used didactic educational method for the transfer of knowledge. Lectures tend to be passive experiences from student's point of view and have questionable outcomes [4]. This study was carried out to test the Effectiveness of an ECE module on the surgical performance of 1st year MDS students in periodontics. Periodontal surgical procedures are taught during the second and third year of the post-graduation course in the subject of periodontics. During their under graduation they are taught the theoretical lectures along with / without PowerPoint presentations. Hence, a 2 hrs. session was conducted explaining the theoretical concepts of the surgical procedures (Flap procedure). Later Video demonstration related to the surgical procedure was used to implement ECE. Videos provide enhancement in visualization of the oral cavity and allows creation of mental representation to encourage deep learning within classroom dynamics.

A standardized information is imparted to students by different tutors. Videos are helpful as the students can refer to material repeatedly [2]. Later perception regarding ECE module was done with feedback. Also pretest and post test was conducted for the same.

Result

The results of the present study revealed that both the control and the study group showed significant increase in knowledge compared to the baseline line values but when OSPE scores were compared test group showed statistically significant results.

Conclusion

ECE module is better understood, retained and later practically applied. If learned in a clinically significant set up ECE helps to improve understanding, Develop problem solving skills and increases interaction. Retention of knowledge is better due to integration of basic science and clinical science and development of self-directed learning skills. It is a better learning methodology than traditional teaching alone.

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