Early Clinical Exposure In Anatomy

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Abstract: Background and objectives: Vertical and Horizontal integration of Medical Sciences will help the student to understand the relevance of basic medical subjects with the clinical subjects. This would help the future medical professionals to rationalize the diagnosis and management of diseases. Hence, the present study has been done to provide evidence on the effect of video presentations of common clinical cases during the anatomy classes in terms of comprehension and correlation. Methods: The project was done at M.S.Ramaiah Medical College, Bangalore. A comparative cross over study was done. 90 students who volunteered for the project were divided into 2 batches. One batch was shown upper limb videos and the other batch was shown lower limb videos. A test of multiple choice questions and short answer questions, which included equal number of questions from upper limb and lower limb, was given to all 90 students. Feedback was taken from the students by a questionnaire based on a 5 point likert scale. Results and interpretation: The difference in the scores (median) between the study and the control group for lower limb presentations was significant (p-0.04). The upper limb mean scores of study and control group did not show much difference (p-0.285). Process evaluation questionnaire results revealed appreciation of the intervention. The students have expressed that the intervention improved their comprehension of the subject (3.93). It also has helped the students in retaining the memory (4.55) of the learnt topics because of a visual impact and correlation of anatomical knowledge with clinical scenarios. Conclusion: The video demonstration of common clinical cases as an adjuvant to didactic lectures has made a positive impact in the form of increase in knowledge due to better comprehension and correlation. [Chowdapurkar S NJIRM 2017; 8(5):53-56]

Key Words: Basic sciences, Clinical anatomy, Clinical exposure, Vertical integration.

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Introduction: Exposing the students to clinical cases as early as first year assists the student to learn relevant anatomy and its importance to medical diagnosis. This concept of early clinical exposure has been emphasized in the Vision 2015 of Medical council of India. But presently students of I year MBBS are taught applied anatomy without any idea of the clinical cases. This leads to mere memorization rather than a strong correlation between clinical aspects and basic sciences. Anatomy taught should help the students in their future practice. Hence an effort has been made to integrate basic sciences with clinical sciences for better comprehension and correlation of Anatomy. The objectives of the intervention include to assess multimedia exposure of clinical cases during the first year in terms of correlation of anatomical knowledge with the clinical cases and to assess the perception of I year medical students regarding early clinical exposure.

Methods: The project was conducted at M.S.Ramaiah Medical College, Bangalore. The study design was a comparative crossover design. Study subjects included the students of 1st MBBS attending the session. After dissections, two clinical cases each from upper limb (Klumpke's Paralysis, Wrist Drop) and lower limb (Varicose veins, Foot drop) were videographed. 90 students who volunteered for the project were divided by random stratification method into two groups. One group was shown videos of upper limb cases and the other group was shown on lower limb cases. A test of MCQs and SAQs, which included equal number of questions of upper limb and lower limb was given to all students 4 weeks after the intervention. Feedback was taken from the students using a questionnaire of a 5 point likert scale. The ethical clearance from Institutional review board and written informed consent from the students were taken. The confidentiality of the student's identity was maintained and blinded for the evaluator to avoid bias.

Statistical Methods: Descriptive statistics of scores were analyzed and presented in terms of Median with IQR as the scores were skewed. Non-parametric test i.e. Mann Whitney U test was used to compare the percentage score between the groups. P value ≤ 0.05 was considered as significant.

Feedback questionnaire was administered and analysed on a 5 point likert scale to assess the perception of students regarding process of the intervention.

Result: Scores analysis: Mann Whitney U test was applied as the scores obtained by the participants did not follow normal distribution.

Table 1: Comparison of scores between the control and the study groups

Topic	Study Scores Median (IQR)	Control Scores Median (IQR)	Absolute Effect Size	P - value
Upper Limb	50.0 (39.6, 62.5)	45.8 (33.3, 58.3)	4.2	0.285
Lower Limb	50.0 (41.7, 71.9)	41.7 (27.1, 62.5)	8.3	0.040

The difference in the test scores of the study and control group was found to be significant for the lower limb topics. The same was not found to be significant for the upper limb topics.

Process evaluation questionnaire (Annexure 1) results revealed appreciation of the intervention. [Graph-1]. The students have expressed that the intervention improved their comprehension of the subject (3.93) and retention of memory (4.55) of the learnt topics because of a visual impact and correlation of anatomical knowledge with clinical scenarios. The video demonstration of common clinical cases as an adjuvant to didactic lectures has made a positive impact on the participants in the form of better comprehension and correlation of basic sciences with the clinical sciences.

Graph 1: Results of process evaluation questionnaire in percentages

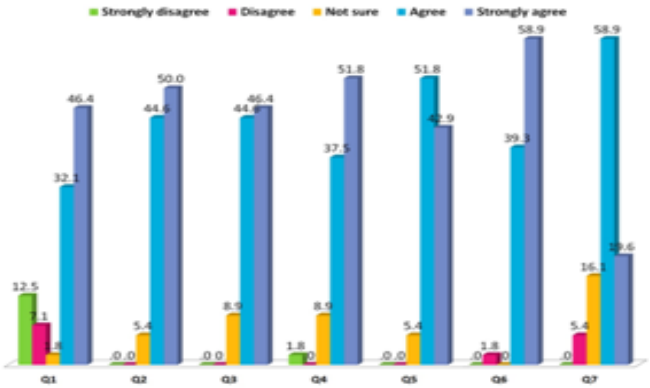

Table 2: Perceptions of the students towards clinical exposure as analysed from the feedback questionnaire are as follows

Sl.No	Positive comments
1	Visual perception of cases is better than listening to mere description
2	Generated interest and gave practical knowledge and comprehension
3	Makes it easy to correlate with theory and remember
4	Seeing through how a person goes through the stages of diagnosis and treatment is interesting
5	Though clinical cases were shown on videos, they were close to reality.
6	Studying through patients is better than only through text books
7	To show similar videos for all the relevant topics in anatomy
	Negative Comments
1	Improve the quality of videos and another was to show videos along with the relevant theory topic.

Content analysis of the strengths of the present program was done to identify the processes that facilitated the learning of the students [Table-3]

Table 3: Content analysis of the strengths of the program

Sl. No.	Processes facilitating learning	Percentage
1	Comprehension	91.07%
2	Visual impact	17.85%
3	Clinical impact	7.14%
4	Interest level	5.3%

Discussion: The Indian medical curriculum mentions the concept of vertical and horizontal integration, but it has not been implemented in the real sense in most of the medical colleges. Some of the medical colleges have tried and implemented in their own ways. The teaching in various subjects has been followed in the form of water tight compartments and the students are also learning in the same way. But as a physician there is a need to integrate the anatomical, physiological and biochemical aspects to comprehend the normal functioning of the human body and to identify the abnormal from the normal. Hence, there is an increased and genuine need for change in the teaching learning methodology to train the medical

students and to learn with a holistic approach. There have been many experiments in order to bring the clinical point of view early during the initial phase of the medical curriculum. As a result, early clinical exposure (ECE) has been proposed in the first phase of the Indian medical curriculum according to the document of VISION 2015 by the MCI. The present teaching learning methodology which is mainly didactic lectures can be combined with clinical scenarios to keep up the interest levels of the fresh medical students. An effort has been made here to expose the medical students to the clinical aspects for instilling skills of higher cognitive domain such as comprehension and analysis.

To overcome the difficulty of showing live patients to the entire class of 150, we decided to try the efficacy of the video presentations of these cases.

In the present study, there was a significant rise in the scores of the study group than the control group of lower limb but not so in case of upper limb. This could be because of many reasons like the difference in complexity/simplicity of the topic, the effectiveness of the demonstrator, the clinical case video presentation aspects etc.

Many experimental and analytical studies in the form of intervention programs and systematic reviews on early clinical exposure have been conducted. The intervention programs included taking the students to clinics after a case based lecture, comparison of lectures by anatomist alone and with assistance of clinician and early introduction of physical examination skills. The results of these studies has revealed a positive impact on the learning of the student in the form of increase in clinical skills, increased interest level for the subjects, change in attitude towards clinics, increased self-confidence and reduction in stress levels.[1-6]

Some of the medical educators have assessed the satisfaction of the students towards medical education by a 15 item questionnaire of which 11 items were related to medical education and the 4 were about clinical exposure. They found that although all students were quite happy with the medical education, the group with clinical exposure was significantly more satisfied.[7]

A survey was done to evaluate whether the first year students were prepared for the clinical exposure. Based on the responses they concluded that though the students were young, they were psychologically well prepared for early clinical exposure and enjoyed the hands-on experiences during their clinical duties.[8]

An integrated learning program was conducted to teach the gastrointestinal system in the first year of the medical course. This program also involved early clinical exposure as a part of it. The evaluation of the feedback from the students has highlighted application to clinical cases as one of the benefits.[9]

The students strongly felt that video presentations increased the comprehension of the subject. It also helped to clinically correlate the relevant anatomy to the clinical problems on an anatomical basis. Since the students could understand the clinical relevance it was easy for the students to recapitulate the relevant anatomy and did not feel the need for rote memorization. The video presentation broke down the monotony of instruction by the teacher due to the visual impact and this in turn could have raised the interest level of the students. [Table-3].

Content analysis [Table-3] also reveals that using video presentations facilitates the process of comprehension and secondly visual impact has a role to play in effective learning which would result in enhanced performance of the students.

All the above studies and the present study further emphasize the need for integration of clinical and basic sciences. Early clinical exposure facilitates the learning of the student in a more holistic manner with clinical correlation.

Conclusion: The video demonstration of common clinical cases as an adjuvant to didactic lectures has made a positive impact in the form of increase in knowledge due to better comprehension and correlation. There was a significant rise in the scores of the study group than the control group of lower limb. The perception of the students regarding clinical exposure during their first year was positive. Clinical exposure facilitates the students for better comprehension and correlation of anatomy with clinical sciences. Also clinical exposure as early as first year helps in maintaining and boosting up one's enthusiasm to become a doctor.

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