

Retention of Anatomy Knowledge: During Clerkship

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Abstract

Background and Objective: Anatomy is the basic subject during pre-clinical phase. Its clinical correlation is essential for the diagnosis and examination of patient. This study was conducted to evaluate retention of anatomy basics at the end of clinical and clerkship stage of medical profession.

Materials and Methods: This was a Cross sectional study. Total 200 students of MBBS from final year and house officers were included in this study related to integrated system of education. Out of total participants 45% were male and 65% females, 45% were from final year and 55% were interns. Valid questionnaire with 9 valid questions was used.

Results: 62.5% agreed that knowledge of anatomy is important for clinicians. 48% agreed about application of anatomical skills and knowledge should be incorporated in pre-clinical stage of curriculum. 48.5% strongly agreed that applied anatomy can relate the basics with clinical skills. 45% strongly agreed and 40% agreed regarding the importance of anatomy basics that should play vital part in making perfect physician. 41% strongly agreed and 40% agreed that anatomy fades with the passage of time. 51% strongly agreed while 37% agreed that problem based curriculum plays an important part in retention of knowledge.

Conclusion: The students appreciated the importance and relevance of anatomy knowledge during their clinical posting. However, there is substantial loss in anatomy knowledge during clerkship. Hence there should be vertical integration and spiral curriculum of anatomy, to improve clinically knowledge of anatomy.

Keywords: Anatomy; Clinical Clerkship; Medical Education

Introduction

Anatomy is the basic subject that is the part of medical curriculum during pre-clinical phase of medical school. Now in current phase, anatomy exists with higher weightage in integrated system. Medical education accelerates the learning through application of different learning strategies, which boost up the retention of subject knowledge and develop student's competency regarding clinical correlation of subject [1]. Clinical correlation of anatomy is essential for the diagnosis and examination of patient. In learning of surgical skills, surface

anatomy had a huge influence [2]. Regarding reporting of radiographs, MRI or others, basics of anatomy contribute in diagnostic reasoning [3]. Curriculum based on vertical integration focused on application of basic knowledge along with clinical. Teaching strategies highly contribute in retention of knowledge and develops clinical solving attitude [4]. Problem based and team based learning are extremely appreciating methodologies that ensures correlation of basic knowledge of anatomy with clinical application in early phase [5]. Mostly outcomes of non-integrated curriculum showed irrelevant application of anatomy knowledge and its retention during clerkship period. With passage of time psychomotor competencies fades due to insignificant learning approach and attitude towards clinical relevant subjects especially in pre-clinical education phase [6,7]. Errors can be controlled by implementation of problem solving curricula and practical approach towards development of competencies and attitude [8]. In our institute integrated curricula based system is running, in pre-clinical (1st, 2nd and 3rd year) the team based and problem based learning methodologies are implemented for the development of psychomotor skills among the students. In Clinical (4th and 5th year) phase problem based and case based learning skills are used for the development of clinical attitude. This study was conducted to evaluate retention of anatomy basics at the end of clinical and clerkship stage of medical profession. We hypothesized that the integrated learning system had an impact in retention of basic knowledge of anatomy and its application in actual clinical platform.

Materials and Methods

Cross sectional study was designed at Al-Tibri Medical College and Hospital. Isra University Karachi Campus after ethical approval from Institutional ethical review committee of Al-Tibri Medical College and hospital. The study was done during the period of January 2019 to December 2019. A valid Questionnaire [9] was used to evaluate the response of the participants. The verbal consent was taken by the participants and non-probability convenient sampling was used in this study. Both genders with total 200 numbers of participants from the clinical sciences were including in this study (5th Year MBBS and interns). Students from the basic medical sciences and allied sciences were excluded. Valid questioner was used in this study to assess the importance of anatomy in clinical phase and retention of knowledge during clerkship.

Results

Total 200 numbers of students were enrolled in this study voluntarily. Out of total participants 90 (45%) were male and 110 (55%) females as shown in figure 1.

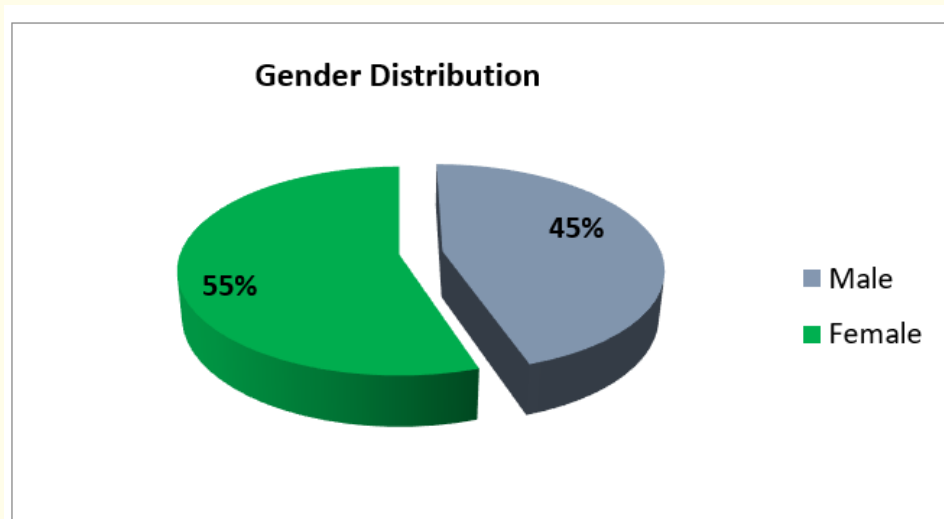


Figure 1: Showing gender distribution.

90 (45%) participants from final year with mean age of 23.45 ± 1.84 and 110 (55%) were interns with mean age of 24.04 ± 1.51 .

The frequency of the response was shown in table 1. To evaluate the level of significance Chi-square test were applied and P value was considered significant < 0.05 .

Questions	Final Year n = 90					Interns n = 110					P Value
	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	
1.	5	10	8	32	35	6	14	6	40	44	0.915
2.	23	55	5	3	4	22	70	4	6	8	0.683
3.	40	42	5	2	1	46	54	4	4	2	0.904
4.	43	39	6	1	1	54	48	2	4	2	0.360
5.	7	12	8	35	28	13	13	8	48	28	0.755
6.	39	35	8	7	1	54	35	12	4	2	0.314
7.	39	39	4	7	1	52	41	8	4	5	0.311
8.	38	35	7	9	1	44	45	6	11	4	0.775
9.	43	37	4	5	1	59	37	8	5	1	0.761

Table 1: Showing perception of participants of clinical sciences on retention of anatomy knowledge.
Chi-Square test $P = < 0.05$.

Questionnaire

Q1. A physician can effectively treat most medical problems without knowing the details of the anatomy of the system involved
Q2. Knowledge of anatomy is the most important for a good physician
Q3. Applying anatomy knowledge to clinical practice is a skill which should be reinforced early in medical education
Q4. With anatomy, It is first necessary to learn as many facts as possible and then learn to apply them in the clinical skills
Q5. Student should learn only general concepts in anatomy (rather than small details) in order to be a competent physician
Q6. During the preclinical phase, staff members used to stimulate students' curiosity through the teaching of anatomy
Q7. The information and experiences I have received to date in anatomy are fundamental to my future role as a physician
Q8. Anatomy knowledge from preclinical years fades by the time I reach clinical clerkship
Q9. I retained the anatomy knowledge which I had received through PBL curriculum

Discussion

In clinical practice anatomy knowledge plays a very important role, but it is difficult to retain it for the long time due to the large volume of course. In this study we concentrated on the perception of final year students and house officers about integrated learning strategies that could help them in retaining the anatomical knowledge and its application during clinical practices. Most of the participants believed that anatomical knowledge is necessary for a physician to treat the patient effectively. Similarly, Ramsden P, explained that for a surgeon to perform the surgical procedures awareness of anatomy is mandatory. Not only that but for radiology, or physical examination or any other emergency procedures, all requires information about anatomy [10].

One of the studies suggests that most of the anatomy which is taught in early two years of medical education is difficult to recall during their practices [11]. Similar results were noticed in the present study among the students of final year and house job. So, it is believed that

if anatomy is taught along with its clinical application it will help in better understanding and long term retention. It is in accordance with the Dahle LO [12]. Another study suggests that during pre-clinical period if we repeat anatomical knowledge frequently it will enhance the retention power of students [9]. When the students reach their ward practices their perception changes for anatomy compared with preclinical phase. The anatomy, which is taught along with its clinical application, showed greater impact of knowledge for longer period.

Same was observed in one of the recent studies in which the student's perception about the knowledge of anatomy along with its clinical correlation improves the student's status which can be taught under problem based learning improves the retention of anatomy [13]. Another study showed that senior medical students agreed that the topics which were taught thorough problem based learning is better in understanding than non-problem based learning curriculum because it has more associated with clinical problems [6]. In accordance with Custers EJ the instillation of medical education in students will form a ground for a future practitioner and supports him in dealing the community [14].

Conclusion

The students appreciated the importance and relevance of clinical anatomy and its application during their clinical posting. However, there is substantial loss in anatomy knowledge with the passage of time. Hence there should be a vertical integration and inclusion of anatomy contents in spiral curriculum can work and helps to prevent the substantial loss of anatomy knowledge. Integrated educational system play an important role in restoring the basic of the subject.

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