



Use of Microbiology Museum as a Learning Tool by Second Professional Undergraduate Medical Students in Tripura Medical College

KEYWORDS

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INTRODUCTION

Medical students are expected to gain better understanding of the contagious disease process through objective use of diagnostic tools designed to help them reach a conclusive diagnosis in their second professional course. The curriculum therefore covers all modern investigations being carried out. There is an opinion which states that very little attention is being paid to laboratory related medicine subjects in medical curricula.[1-3] Though not given much emphasis on active learning in current practice of medical teaching, studies reflect that active learning strategies improves the understanding and learning of those subjects.[4-9]

Use of informatics tools both conventional and newer, is expected to improve the learning process and expand access to medical knowledge.[5] Simultaneously, there has been gradual disappearance of use of traditional medical museums and autopsies, potentiating the use of these traditional teaching methods should also be a priority in medical education. This is also applicable for the subject of Microbiology.

The medical students of present generation undergo regular classes on the knowledge of microbes – causative agents, pathogenesis, laboratory diagnosis. But the brief history of great scientists and their contributions are hardly remembered, use of specimens, charts and models of life-cycles of microorganisms collected in museum are not effectively used. Microbiology museum of any medical college is one of such extensive organized collection. It is felt that history of medicine, works of great scientists, can not only stimulate a research inclination but also active learning process amongst medical students leading to a sound basic concept.

The stimulating search component has been consistently lacking, resulting in tailor-made growth for passing examinations. The present goal of teaching is not only for para clinical and clinical practice but also for inclination towards research in the field.

The aim of this study was to assess the interest of the medical students towards visiting museum during II MBBS professional in course of their teaching learning process.

MATERIALS AND METHODS

This was an observational study conducted in Tripura Medical College, Hapania, Agartala, Tripura over a period of four years ranging 2007 to 2010. It was done in two different ways both quantitative and qualitative. Firstly, in order to ascertain whether the students utilized the museum

in order to prepare themselves for the practical examination, specific questions were fixed up in viva on their number of visit in museum, specific specimens, scientists and their work. These were asked to all students of II MBBS of an identified batch. The individual score was analyzed.

To find out the frequency of students' visit in museum per year per batch, a register was maintained. The checklist for analysis for students' visit included the number of students visited, number of times individual student visited, and duration of each visit. Descriptive analysis was done. In order to further analyze the situation, a few interrogative sessions were taken up with the students individually on their idea on utilization of museum as a study tool.

RESULTS

A. Result of Viva: It was found that majority of the students did not visit museum separately out of their own interest except for specific defined practical class. Performances on the specified question related to museum visit and to the contribution of scientists were found to be poor. The range of scores by the batch was considered as Excellent $\geq 75\%$, Good ≥ 50 to $<75\%$, Fair ≥ 35 to $<50\%$ and Poor $<35\%$.

B. Result of Interrogative session: From an overall perspective, students feel that it could be a meaningful experience. Few students agreed that the exposure to museum made them realize that they still had a lot to learn about medical microbiology and could enhance the motivation of learning. They also agreed that visit to museum as compulsory directed learning could make a positive contribution to the increase in their marks obtained in practical and viva examination

DISCUSSION

This preliminary study reflects that more time can be allocated for practical sessions in teaching Microbiology, particularly practical sessions at the beginning of the course can be dedicated to museum oriented sessions. This can help in developing interest of the students towards the subject and can help them in self directed learning also. Before the microbes enter the human body, the histories of discoveries, inventions made by these great scientists recreate the values tagged, as history and photograph of scientists speak volumes on pain as well as success to learn about. According to Dent [10] apart from being a mechanism of conveying factual knowledge, lectures probably have a more important role in the sense that they could be utilized to invigorate students' interest and contribute to self-directed learning in a particular subject or topic. An emotional investment in the process of learning in the form of passion, excellence and commitment, is required

for students to become interested and enthusiastic to explore an unfamiliar subject.[11] Undergraduate medical training is characterized by an emphasis on and intensity of learning. For effective teaching, medical education must be able to assume that graduates of professional programs have the knowledge and competency to be successful in their programs. To attaining this teaching are designed to be provided by the teachers and tiered examinations are design some way designed in an integrated and cohesive manner to ensure that students receive an education that will prepare them for the current state of training and, eventually, practice[12] wherein museum can be considered as an important media for teaching learning.

The causes of under utilization of the museum may be many. Very few institutions have a proper standard operative process. So a proper planning of utilization of museum by the students and teaching staffs is necessary to improve the situation. It has been observed that sometimes museum loses its value if it is converted to class room as happens at times in order to manage and utilise the central space. Utilisation needs to be optimally, ideally planned for the students with adequate supporting facilities. When this needed arrangement is wanting, the student's interest cannot be initiated, groomed and maintained. It has been observed that students enter the museum for tutorial classes and at times as waiting area during examination. Conversion in these ways leads to further mis-utilisation. So the students, apart of growing interest on museum lose the meaning of the role of a museum. Therefore, the necessity of an approach to learning that involves excitement, fun and motivation for medical teachers and students alike, is pointed out by Vaughn L *et al.*, it is not unfounded to argue that students become bored with one-sided presentations. [13] Suitable and appropriate arrangements would stimulate students. Unless attempts are made adequately with logic and reason, the museum would lose its role in stimulating students, invoking interest that range from entry, attachment, penetration and positive outcome in the examination and ever- lasting imprints in the minds.

Based on the feedback obtained by interrogative sessions conducted after students' examination, it could be concluded that guided and repeated exposure to museum could have contributed considerably to a change in students' perception of medical microbiology. Museum being a precious collection of past and present information, it can be very well considered as a teaching learning tool not only for teacher directed teaching but also for self directed learning. Therefore, the strategy of using multiple teaching methods like museum sessions can help students develop different learning preferences and enjoy their learning experience.[14]

Therefore, author suggests that periodical visit may be initiated by teachers who play induction role. Semester wise visit planning can be charted on the entry wall of museum so that students' visit can be monitored regularly and documented. The contents of the museum may be highlighted on the front wall itself to create interest for visiting. That museum visit is integral to better understanding, memory followed by scoring in the examination can thus be practically successful. This would leave behind a permanent impression in mind after they leave the course. Thus in this way the interest on the role of the museum even to cling to research in the field can be initiated and maintained.

Limitation of the study: This is a preliminary study based on only one private medical college of India. It requires

further study and analysis in other setups to strengthen the fact.

REFERENCES

1. Muhamed Osman, Ariza Adnan, Methil Kannan Kutty, Redhwan A. Al-Naggar, J Basic Appl Sci Res 2014 ; 4: 151-7.
2. Anurag Saxena, Raenelle Nesbitt, Punam Pahwa, Sheryl Mills. Crossword Puzzles: Active Learning in Undergraduate Pathology and Medical Education. Archives of Pathology & Laboratory Medicine 2009; 133:1457-62.
3. Dunne D, Brooks K. Teaching with Cases. Halifax, NS: Society for Teaching and Learning in Higher Education. 2004.
4. Gabril MY, Yusef GM. Informatics for practicing anatomical pathologists: Marking a new era in pathology practice. Mod Pathology 2010;23:349-58.
5. Mortimer R, Lakhani S. Pathology in education and practice: A time for integration? Aust Health Rev 2008;32:319-21
6. Venkatesh SK, Wang G, Seet JE, Teo LL, Chong VF. MRI for transformation of preserved organs and their pathologies into digital formats for medical education and creation of a virtual pathology museum. A pilot study. Clin Radiol 2013;68.
7. Donner RS, Bickley H. Problem-based learning in American medical education: An overview. Bull Med Libr Assoc 1993; 81:294-8.
8. Edelbring S, Dastmalchi M, Hult H, Lundberg IE, Dahlgren LO. Experiencing virtual patients in clinical learning: A phenomenological study. Adv Health Science Education Theory Practice 2011; 16: 331-45.
9. Charlton R. Autopsy and medical education: A review. J R Soc Med 1994; 87:232-6.
10. Dent JA. Teaching and learning medicine. In Dent JA & Harden RM (editors). A Practical Guide for Medical Teachers. Edinburgh: Churchill Livingstone ; 2001. 1-10.
11. Lazerson M , Wagener U. Teaching and learning the unfamiliar. Change 1999; 31: 38-9.
12. Michael L. Wilson. Educating Medical Students in Laboratory Medicine. Am J Clin Pathology 2010; 133:525-8.
13. Vaughn L, Gonzalez Del Rey J , Baker R. Microburst teaching and learning. Medical Teacher 2001; 23: 39-43.
14. Shah C, Patel S, Diwan J, Mehta H. Learning Habits Evaluation of First M.B.B.S Students of Bhavnagar Medical College. Int J Med Sci Public Health 2012; 1: 81-6.