



RESPECT FOR HUMAN LIFE EVEN AFTER DEATH: AN ETHICAL CONCERN OF CADAVER DISSECTION

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ABSTRACT

Introduction: Cadaveric dissection is routinely practiced for teaching anatomy for medical students and help them understand the three-dimensional structure by visual and tactile impression. There is a need for students to act in an ethical way while dissecting cadaver in medical colleges and also to understand the key principle in handling cadavers which lies in following universal precautions in dissection hall.

Aim: To train the medical undergraduates in Anatomy to respect the cadaver as their first teacher. To assess their knowledge regarding ethical aspects of dissection of the cadaver and study the feedback given by students after sensitization.

Methodology: Knowledge of 100 students from 1st MBBS regarding ethics in dissection hall was assessed with the help of pretest consisting of 10 questions. OSPE was conducted to assess their attitude while actually dissecting the cadaver. The students were sensitized regarding ethics to be followed while handling cadavers by didactic lectures. Then posttest and OSPE were conducted to assess their gain in knowledge, change in attitude and behavior on dissection table. Data of feedbacks was analyzed.

Results: There was significant gain in knowledge students about respecting a cadaver, other responsibilities while dissecting cadaver, gratitude practices and overall mannerism in dissection hall. Chi-square -value for getting ready for dissection was 68.16, $P=0.0001$, and Chi-square -value for steps for disposal of tissue was 105.8 ($P=0.0001$).

Conclusion: Students should be made aware of dissection hall mannerism and respecting cadavers as their first teacher. Present study recommends inclusion of ethics and guidelines for proper disposal of biologic tissue and personal safety while dissecting dead bodies in existing curriculum of 1st M.B.B.S. students.

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INTRODUCTION

Anatomy is one of the most important subjects offered during the MBBS course. Cadaveric dissection is routinely practiced for teaching anatomy for medical students. Dissection is the dismembering of the body of an animal to study its anatomical structure. Dissection has been used for centuries to explore anatomy. Cadaveric dissection helps students to understand structural organization and also to grasp the three-dimensional anatomy and concept of innumerable variations¹. Through dissection, students are able to get the feel of the human tissues and structures of the human body². Dissection is not only a skill, but also an art that is identified as the signature of a surgeon. The initial learning seat for this marvelous art is the anatomy dissecting room.

Body donation is extremely important for medical education, but the number of people who choose to donate their body actually remains low.

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According to the state regulations, most of the cadavers are obtained from the forensic mortuary declared as unclaimed body. But some are collected through body donation as well. When every individual has autonomous control over the disposition of his or her own body, few great humans or their relatives donate their bodies to medical institutes for educational purpose and remain alive in our process of learning anatomy. These cadavers are silent mentors and first teachers of medical students.

However, use of human cadavers for teaching and training purposes and human tissues for research is surrounded by ethical uncertainties³. The main ethical concern of cadaver dissection lies in respecting human life. Objections to the use of cadavers have led to the use of alternatives including virtual dissection on computer models, but dissection remains the vital tool which helps students to have tactile understanding of real human tissue, organs and bones.

Cadavers in dissection hall may harbor a multitude of organisms like Mycobacterium tuberculosis, prions causing Creutzfeldt-Jakob disease and Gertsmann Straussler Scheinker syndrome, even after embalming⁴. Also, there is no

definitive evidence to show that HIV is inactivated after embalming. It's even more disheartening to know that the instruments used by students for are never sterilized. As students are handling sharp instruments for the first time, they are more prone to cuts and bruises. Against such a scenario, it is imperative that all persons handling cadavers follow universal precautions. Prevention of transmission includes the wearing of protective gear, ensuring the environment is clean, and proper disposal of used biologic tissue. The principles of universal precautions will be hammered into young brains only if they are made to follow them in every invasive endeavor. It is easy to learn good things, but it's very difficult to unlearn erroneous practice once it had get into one's habit, so the proper teaching to cut, handle and dispose human tissues should start at the beginning itself in first year at dissection hall.

Need of the study

The anatomists are often the first teachers in the curriculum who need to be aware of ethical problems, so more attention should be paid to the first encounter with cadaver. Varying responses regarding attitude of students are observed by teachers in dissection hall. Many students try to indulge in mischievous activities like calling cadaver by nicknames, passing comments on physical features, putting instruments and cotton in mouth and orbits of the cadaver etc.

This study has been aimed to make students aware of the fact that few humans had been extremely generous to give their bodies in hopes of helping others by helping to train doctors. It will also set a nominal guideline which will help students to act in an ethical way while dissecting cadavers in dissection halls of Anatomy departments. The present study also made them understand that the key principle in the dissection of human cadavers lies in prevention of disease to the dissector.

Aim & Objectives

To train the medical undergraduates in Anatomy to respect the cadaver as their first teacher. To assess their knowledge regarding ethical aspects of dissection of the cadaver and study the feedback given by students after sensitization.

METHODOLOGY

Prospective interventional study was carried out at Department of Anatomy, Jawaharlal Nehru Medical College, Sawangi (M), Wardha from October 2017 to March 2018 after obtaining IEC (Institutional Ethical Committee) clearance. (IEC Letter of Approval Ref. No. DMIMS (DU)/IEC/2017-18/6988 Date: 05/01/2018). Written consent was obtained from 100 students who voluntarily participated in the study. Knowledge of 100 students from 1st MBBS regarding ethics in dissection hall was assessed with the help of pretest consisting of 10 questions. Module consisted of pretest, posttest and feedback forms which was based upon a review of literature and various studies conducted elsewhere. OSPE was conducted to assess their attitude while actually dissecting the cadaver. The students were sensitized regarding ethics to be followed while handling cadavers by didactic lectures. Hands on training on safe handling and disposal of biologic tissue also on personal safety was undertaken. Again, posttest and OSPE were conducted to assess their gain in knowledge, change in attitude and behavior on dissection table. Student's perception was obtained by feedback on 5 point Likert scale. Pretest and post test results were compared and were analyzed by quantitative

method. Data of feedbacks was analyzed qualitatively. Statistical analysis was done by using descriptive and inferential statistics using chi square test and student's paired t test and software used in the analysis were SPSS 22.0 version and GraphPad Prism 6.0 version and p<0.05 is considered as level of significance.

OBSERVATION & RESULTS

100 students of first year MBBS 2017 batch participated in present study. There were 48 males and 52 female students. After sensitizing students there was statistically significant gain (p<0.001) in knowledge about respecting cadaver, gratitude practices, overall mannerism in dissection hall. Pretest and posttest results are given in Table 1.

Table 1 Comparison of pretest and posttest knowledge score

	Mean	N	Std. Deviation	Std. Error Mean	Mean Difference	p-value
Pre-Test	9.41	100	2.14	0.21		40.36
Post-Test	18.35	100	1.46	0.14	8.94±2.21	p-value=0.0001

It was also observed that there is significant change in attitude of students while actually dissecting the cadaver and also significant gain in knowledge regarding personal safety measures to be followed and safe disposal of used biologic tissue. It is represented in Table no. 2 Perceptions of 1st year medical students towards ethical aspects related to anatomy are as per Table no 3

Table 2 Analysis of OSPE

OSPE	No of students performed the task correctly (Pretest)	No of students performed the task correctly (Posttest)	X2-value
Q 1 Students are asked to perform steps for getting ready for dissection	42	96	68.16 P=0.0001
Q 2 Perform steps for proper disposal of used tissues after dissection	21	93	105.8 P=0.0001

Table 3 Analysis of feedback

Sr.no	Perception of students	Strongly agree	Agree	Neutral	Disagree	Strongly disagree
1	Gratitude practices for cadavers should be followed in dissection hall of our institute	78	18	4	0	0
2	Dissecting cadaver gives better 3D idea than learning anatomy from videos	78	14	8	0	0
3	Classes on ethical issues while handling cadaver should be included in curriculum	22	68	10	0	0
4	Safe disposal of biologic tissues in dissection hall should be included in training of 1 st MBBS students	32	40	26	2	0
5	Do you wish to donate your or relatives body to medical institute	10	16	33	11	30

78% students strongly agreed to start gratitude practices for cadavers in medical institutes. And the same percentage of students strongly agreed that dissecting cadaver gives them better 3D idea while learning anatomy. 68% students agreed to include classes on ethical issues while handling cadaver in their curriculum, while 22% students strongly agreed on the same point. 40% students agreed to include training of safe disposal of biologic tissues in dissection hall in their syllabus. But even after sensitization we got mixed response on the issue of body donation, 30 % students strongly disagreed to donate

their body to dissection hall while 33% students gave neutral response.

DISCUSSION

Cadaver is the first teacher of Medical students. These are silent mentors who were once living beings. More than book a dead body teaches us. Anatomy is rigorous course, requiring great dedication and devotion, and a cadaver dissection is an essential technique to learn three dimensional concepts. The cadaver has fundamental moral – ethical value that requires respectful attitude towards it. It plays an important role in shaping medical students attitude toward life and death. Hence it is essential to follow etiquettes during dissection. Main ethical concern of cadaver dissection lies in respecting the human life.

According to today's scenario, where students are becoming more and more tech-savvy they prefer to use internet, particularly videos for learning anatomy and prefer to be away from the dissection hall. Actually, dissection hall is ideal place to introduce concept of humanistic care. This study tried to train first year MBBS students to respect their first teacher in the world of medicine. After assessing knowledge of students regarding ethics to be followed in dissection hall and personal safety measures, didactic lectures and hands on training was conducted. Posttest, OSPE and feedback were taken after sensitization to know about gain in their knowledge and change in attitude.

It was found that in present study after sensitization of students, there was statistically significant gain ($p < 0.001$) in knowledge about respecting cadaver, gratitude practices, overall mannerism in dissection hall. 98 % students agreed that videos or prosections could not be preferred instead of dissection, which was 54% before sensitization. This finding is consistent with the findings from previous studies conducted by Patel⁵, Jones⁶, Johnson⁷, Rajkumari and Singh⁸, Rajkumari⁹, Parker¹⁰ and Mclachian¹¹. Prakash¹² et al describe dissection as “a precious experience” not to be missed as cadaveric dissection as it has other learning outcomes besides anatomical learning, such as fostering teamwork and respect for the human body. In the present study 93% of the students were of the view that, dissection is the best method for learning anatomy. This finding is consistent with previous study by Rajkumari⁹ and Izunya A.M.¹³

OSPE results in present study showed significant improvement in attitude of students while actually dissecting the cadaver and also significant gain in knowledge regarding personal safety measures to be followed and safe disposal of used biologic tissue. (Chi-square-value for getting ready for dissection is 68.16, $P=0.0001$, S. and Chi-square-value for steps for disposal of tissue is 105.8 ($P=0.0001$)) These findings are similar to the study by Rajkumari et al.⁹

78% students strongly agreed to start gratitude practices for cadavers in medical institutes and that the dissecting cadaver gives them better 3D idea while learning anatomy. 94% students answered correctly the sources by which medical institutes procure cadavers. 90 % students agreed to include classes on ethical issues regarding cadaver in curriculum. 41 % students disagree for voluntary body donation which could be due to unpleasant experiences in the dissection hall like many dead bodies lying on dissection tables, smell of formalin,

irritation and watering of eyes, nose and throat, nausea, syncope etc.

After sensitization 81% of students could answer correctly the safety measures to be taken while dissecting a cadaver. While 70 % students gained knowledge about clean and safe disposal of used biologic tissues. In the present study 96% students were able to get ready perfectly for dissection and 93% were able to dispose-off used tissues after dissection properly.

CONCLUSION

Cadaver being our *first teacher* in medical field and without its availability medical education would come to a standstill. Dissection hall cultivates an attitude of humanistic care in students. It is through anatomy lab, that students gain personal insight regarding their ability to balance their emotions and professionalism with reference to ‘end of life’. The way future doctors will treat their patient can be reflected by the way they treat the cadaver. So, the awareness regarding the respectful treatment to the cadaver which are first teachers and silent mentors to the students is a must. The present study recommends including sessions on ethics in dissection hall and safe disposal of biological tissue in dissection hall in medical curriculum at undergraduate level.

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