ORIGINAL ARTICLE

Teaching Anatomy as a Career Option in View of Medical Students in Pakistan

MUHAMMAD ZIA-UR-REHMAN, ZAFFAR IQBAL MALIK, TARIQ HUSSAIN

ABSTRACT

Medical doctors are an important source of anatomy teachers. The aim of this study was to find out the choice of anatomy as a career option among medical students in Pakistan. Five hundred medical students were questioned concerning their views on anatomy as a subject and future career decision. A questionnaire with 17 statements was given to these students and their answers were compiled. The outcome of this study was encouraging. 85.6% of students considered anatomy as a necessary pillar of medical sciences. A vast majority (77.2%) felt that a sound knowledge of anatomy helped them in their clinical rotations in hospitals. However, more than half considered anatomy as difficult to understand and about half disagreed with the question that the two years duration of teaching anatomy is quite adequate. Though 85% placed anatomy at par with clinical subjects, only few liked to take up anatomy as a career in the future. In Pakistan, the lack of both job opportunities and sufficient research facilities confines the uptake of anatomy as a career option. Even with a modified syllabus only one third were willing to become an anatomist.

Keywords: Anatomy, career option, students view, Pakistan.

INTRODUCTION

Anatomy is a basic subject in medical sciences. The knowledge of the structure of the human body from gross anatomy down to the molecular level is essential to understand its function and how both structure and function are modified by disease processes (McCuskey, 2005).

Medical career starts with dissection of human cadavers. The first contact with a dead body causes emotional fright to the students (Abramson, 1991; Evan et al, 1992 & Finkelstein et al 1990) though gradually they adopt a professional attitude and accept dissection as an aid to study the body structure (Yeager, 1996). Dissection not only teaches anatomy, but also gives us knowledge of many other aspects of life. Cahill et al 1990, Charlton et al 1994, Druce et al 1994, Horne et al 1990, Penny 1984). Cahill and Dalley (1990) mentioned that study of gross anatomy provides a chance for reflection in the built-in values of life and creates empathy for future patients. It teaches the worth of human life.

Mutyala (1996) mentions that dissection increases the ability of thinking in a logical way, which helps in all aspects of medicine. It has been studied that the tendency towards a particular specialty is determined by complex interacting variables, e.g. personality of individuals (Mowbray, 1990 & Walton, 1969) quality of teaching in medical college, clinical competence (Kelley et al, 1995), and future career aims, etc. Now a day's anatomy is selected as a career by very few students. It is frequently noted that students with lower ranks in their professional exams pick anatomy as a last choice.

There is still a shortage of teachers in medical colleges at a global level (Schockley DG, 1986). The number of medically qualified teachers in preclinical subjects is gradually increasing in Pakistan due to attractive pay packages in a mushroom like growing private medical institutes across the country, but still there is a great deficiency of anatomists in all medical institutes (private and public). There is an urgent need to increase awareness amongst students regarding available job opportunities and research possibilities in the subject of anatomy.

Medical doctors remain a possible and vital source of anatomy teachers (Anand, 2004 and Willan, 1998). Teaching of gross anatomy to preclinical students by surgeons in Pakistan provided clinical adjuncts and offered assistance to professional anatomists.

The choice of career path by doctors is influenced by a number of factors. Career development, on-call assurance, a teacher as an example, be devoted to anatomy, and curiosity in the subject were the top five factors influencing the selection of career among 169 medical students in Dundee (Ranta, 2002). In addition to personal interest and lifestyle, income also influences the

Department of Anatomy, Sheikh Zayed Medical College, Rahim Yar Khan

Correspondence to: Dr. Muhammad Zia-ur-Rehman Alvi, Assistant Professor, Department of Anatomy, Sheikh Zayed Medical College, Rahim Yar Khan. E-mail: ziaafraisam2000@yahoo.com

selection of career among medical students (Oyebola, 1998 and Newton, 2005). Sanfeh *et al,* reported the influence of the type of sex on career option (Sanfey, 2006). The interest in a specialty is aroused during training and has an important influence on career choice (Ohaeri, 1992). The choice of career is affected by interest aroused during training and evolves during training (Ohaeri, 1992); yet, doctors are now encouraged to select a career path at an early stage in medical training (Doshi, 2006). Clinical year medical students who have successfully completed anatomy courses should have received maximal potential for arousal of interest in anatomy as a career choice.

The current study was conducted to assess the views of medical students regarding anatomy as a subject, application in various clinical fields and lastly its usefulness as a future career option in Pakistan.

MATERIALS AND METHODS

The present descriptive cross-sectional study was conducted in the Sheikh Zayed Medical College, Rahim Yar Khan, Nishtar Medical College, Multan, Services Institute of Medical Sciences, Lahore, Ayub Medical College, Abbotabad and Hamdard Medical University, Karachi. A random sample of three hundred medical students was taken from those willing to participate in the study. This included 400 undergraduates and 100 postgraduates of various disciplines. First year medical students were excluded from the study because they were not deemed to have had enough pre-clinical exposure to make informed choices about career options in the medical sub-specialties.

Each student was explained the objective of the study and a questionnaire containing 17 items was given to them. The choices for answering the questionnaire were in three categories namely, agree, disagree, and no comment. There was complete secrecy as no names or numbers were mentioned. The facts and figures collected were then analyzed.

RESULTS

The results are given in Table I.

Table 1: The Statement and responses - Student's view

Statement	Agree	Disagree	No comment
Anatomy is not just study of body structure by dissection, it is a vital pillar of medical science	428(85.6%)	46(9.2%)	26(5.2%)
It is difficult to understand and retain Anatomy	346(69.2%)	110(22%)	44(8.2%)
Anatomy is not just study of body structure and their disposition, it is an emerging science now-a-days	267(53.4%)	155(31%)	78(15.6%)
Anatomy is now more important at molecular level. Many things can be explained clinically by knowing molecular Anatomy	307(61.4%)	117(23.4%)	76(15.2%)
I am benefited from knowledge of Anatomy later in my clinical terms	386(77.2%)	57(11.4%)	57(11.4%)
Every good clinician needs to have a sound knowledge of Anatomy besides the clinical specialties	425(85%)	39(7.8%)	36(7.2%)
The time allotted for teaching anatomy in the present curriculum is two years and it is adequate	178(35.6%)	260(52%)	62(12.4%)
I would like to take up anatomy as a carrier if better research facilities are available	210(42%)	228(45.6%)	62(12.4%)
I would like to take up anatomy as a carrier if satisfactory job opportunities are provided	207(41.4%)	225(45%)	68(13.6%)
I would like to be an anatomist if a modified integrated curriculum with other clinical specialties is introduced	207(1.4%)	207(41.4%)	86(17.2%)
Graduates with low ranks in their professional exams take up anatomy for further studies	190(8%)	178(35.6%)	132(26.4%)
An anatomist lacks clinical knowledge and thus wastes his time becoming a doctor	158(1.6%)	282(56.4%)	60(12%)
An anatomist can better correlate clinically, radiologically and sonographically	360(72%)	75(15%)	65(13%)
Anatomy as a discipline has low status within the medical field	143(8.6%)	289(55.8%)	78(15.6%)
Anatomy career has a low status within the medical profession	172(4.4%)	264(52.8%)	64(12.8%)
I enjoyed preclinical anatomy course	250 50	185(37%)	65(13%)
I will like to take up anatomy as a career in future	132(6.4%)	260(52%)	108(21.6%)

As shown in the table, 85.6% of total respondents think anatomy as a vital pillar of medical science and more than 85% feel that a good clinician should have sound knowledge of anatomy. Though 69.2% agreed that it is difficult to learn, 77.2% agreed that they will be benefited from the subject later in their clinical years. About half of the respondents (about 52%) disagreed with the statement that the time allotted for teaching anatomy in the present curriculum is two years and it is adequate. Only 42% students agreed to take up anatomy if better research facilities and acceptable job opportunities are available, while the majority about 45.6% did not like to take up anatomy as carrier even if better research facilities are available though 12.4% did not provide any opinion. With the introduction of modified integrated curriculum 41.4% were willing to become an anatomist and the same percentage disagreed with the opinion, though 17.2% did not give any opinion. About 31.6% agreed that becoming an anatomist was a waste of the degree of doctor however, 56.4% disagreed with the same.

While 38% agreed to the fact that students with low ranks take up anatomy as career and 28.6% agreed that as a specialty it has a low status in the medical field.

Regarding clinical skill, more than 72% agreed with the fact that anatomist can better correlate clinically, radiologically and sonographically, only 15% disagreed and 13% did not give any opinion.

DISCUSSION

In Pakistan the total duration of MBBS course is five years. Out of these the first two years are planned for teaching the basic medical science subjects, anatomy being one of them. Later there is either very little or no attention paid to the anatomical aspects while discussing aetio-pathogenesis of a clinical case. Thus anatomy tends to lose its credibility as it is not a part of day to day curriculum (Chevrel, 1995). It is important to note that in our study a vast majority (85.6 %) of students agreed that anatomy was an important pillar of medical sciences. As Monkhouse (1992) has mentioned that anatomy comprises many aspects of the morphological basis of medicine and provides a structural framework for development of clinical logic. This study also highlights that about 85 % of students felt that a good clinician needs to have a good understanding of anatomy. Moreover, it also helped them in their clinical rotations.

Pabst (1993 and 1994) has published two interesting researches using questionnaires circulated to final year medical students. Anatomy is taught in the 1st semester in his institution. In the earlier study (1993) more than 60% (60-80%) of students thought that anatomy was taught adequately in 1st semester with more than 90% of students expressing interest in idea of reinforcement of the subject by lectures during clinical studies. 75% of all students stated that they would actually have participated in the specialized clinical dissection course during their clinical curriculum. In his second study 94% of students graded that gross anatomy teaching was "essential". Thus all earlier studies related to ours have rated the clinical significance of anatomy very high.

Medical students are afraid of anatomy and up to 69.2% students felt that it is not an easy subject. As mentioned in results majority (52%) disagreed that the time allotted for teaching the anatomy subject, which at present, is two years is adequate. So, there is a need to re-evaluate the curriculum within the same duration of time allotted to the subject and emphasis should be given to anatomical aspects in clinical years also.

The fresh graduates do not even declare anatomy as a choice for post graduation (Soufi, 1992 & Tolani, 1991). The present study also highlights this fact. Only 26.4% agreed that the anatomy can be opted for as a career. The introduction of a modified integrated curriculum only increased the positive response slightly from 26.4% to 41.4%. All the above facts indicate that though the usefulness of the subject is appreciated by the medical students, very few would follow it further. This predicts a further decline in skilled anatomists. An anatomy teacher cannot be replaced by new teaching techniques, (Chevrel, 1995). Therefore, the present study indicates an urgent need for immediate measures to improve the circumstances. One of the main criteria in the choice of a subject as a career is the financial status accorded to it (Anand, 1992; Anantraman et al, 1995; Galazika et al, 1994 & Koivusilla et al, 1995). Insufficient financial returns are associated with professions involving pre and para clinical subjects as it has been reported from other countries e.g. America (Abramson, 1991). Though in our study only 28.6% of total students agreed with the statement that anatomy had a lower status in medical field, only 26.4 % actually agreed to choose it in future.

In Pakistan there are inadequate jobs and research opportunities for anatomists. Though it is said that the main job of anatomists is to teach students and requires that they be available to students at all times (Anantraman, 1995), the experience in the subject is usually determined by the research done. Research opportunities can be enhanced by attaching cytogenetic, hormones assay laboratories with the department of anatomy. This will facilitate to increase patient interaction with anatomists. With the introduction of CT scan and MRI, trained anatomists would be mandatory as

cross sectional anatomy experts. Limited job opportunities also indicate that the only option left for a qualified anatomist would be clinical practice. Though, it is seen that the confidence to treat any illness goes down with the years and this is aggravated by lack of knowledge of advanced clinical methods and increased public awareness (Ellis, 1994). In our study however, 56.4 % did not agree with the statement that a qualified anatomist lacks knowledge equivalent to a clinician.

CONCLUSION

Our study suggested a positive approach of medical students towards anatomy as a subject, but only a few of these students were ready to follow it as a career.

1. A revised integrated teaching curriculum of anatomy with other subjects should be organized to retain continuity of the subject during clinical years in hospitals.
2. Best research and job opportunities should be provided. Research should be need-based for Pakistan. There should be positive response and appreciation of the research work mainly at government level.
3. Interaction with patients and other departments, and combination of anatomy with other subjects may stimulate the fresh graduates to pursue anatomy as a career.
4. Anatomists may be given incentives in one type or the other to encourage more and more students to opt anatomy as a career.

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REFERENCES

1. Abramson S. The dominance of research in staffing medical school time for change? Lnacet 1991; 337: 1586-8.
2. Anand MK, Raibagkar CJ, Ghediya SV, Singh P. Anatomy as a subject and career option in view of medical students in India. J Anat Soc India 2004;53:10-4.
3. Anantraman V & Kanya R. MBBS students observations on pre and paraclinical subjects. J Anat Sci 1995; 14: 31-3
4. Chevrel JP . The modern teaching of modern anatomy. Surgical Radiological Anatomy 1995; 17:285-86.
5. Doshi J & Carrie S. A survey of undergraduate otolaryngology experience at Newcastle University Medical School. J Laryngol Otol 2006;120:770-3.
6. Ellis JR. The profession and people. Journal of Medical Education 1994; 39: 7-11.
7. Galazika Sim S, Kikano George E, Zyzanski S. Method of recruiting and selecting resident for US family practice residencies. Academic Medicine 1994; 4: 1-4.
8. Koivusilla L. Health status, does it predict choice in further education. Journal of epidemiology and community health 1995; 49: 131-8.
9. McCuskey RS, Carmichael SW, Kirch DG. The importance of anatomy in health professions education and the shortage of qualified educators. Acad Med 2005;80:349-51.
10. Monkhouse WS . Anatomy and the medical school curriculum. Lancet 1992; 340:834-835.
11. Newton DA & Gravson MS, Thompson LF. The variable influence of lifestyle and income on medical students' career specialty choices: Data from two US medical schools, 1998-2004. Acad Med 2005;80:809-14.
12. Ohaeri JU, Akinyinka OO, Asuzu MC. The specialty choice of clinical year students at the Ibadan Medical School. Afr J Med Med Sci 1992;21:100-8.
13. Oyebola DD & Adewoye OE. Preference of preclinical medical students for medical subspecialties and basic medical sciences. Afr J Med Med Sci 1998;27:209-12.
14. Pabst R. Gross anatomy: An outdated subject or an essential part of a modern medical curriculum. The Anatomical Record 1993; 237:431-433
15. Pabst R. Teaching gross anatomy: An important topic for anatomical congresses and journals? Surgical Radiological Anatomy 1994; 16:1-2
16. Ranta M, Hussain SS, Gardiner Q. Factors that inform the career choice of medical students: implications for otolaryngology. J Laryngol Otol 2002;116:839-40.
17. Sanfey HA, Saalwachter-Schulman AR, Nyhof-YoungJM, Eidelson B, Mann BD. Influences on medical students' career choice: Gender or generation. Arch Surg 2006;141:1086-94.
18. Soufi HE . Attitude of medical student towards psychiatry. Medical Education 1992;26: 38-41.
19. Tolani B . Continuing medical education and career choice among graduates of problem based and traditional curricula. Medical education 1991;25 (5): 414-20.
20. Willan PL, Whitimor I, Humpherson JR. Career progress of temporary lecturers in anatomy: A surgical success story. Clin Anat 1998;11:50-4.