

A Survey of Local Preclinical and Clinical Medical Students' Attitudes towards Radiology

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Abstract

Introduction: This study compares the attitudes between preclinical and clinical medical students towards radiology, following the introduction of a new radiology curriculum for 1st year students. **Materials and Methods:** Revision of the 1st year medical school curriculum for the academic year of 2008/9 with the inclusion of 13 one-hour formal radiology lectures integrated with each body system was done in an undergraduate Southeast Asian medical school. In the old curriculum, 1st and 2nd year medical students are not exposed to radiology. They received limited radiology teaching in their 3rd and 5th years with 2 one-hour lectures as part of their medicine and surgery rotations. In the 4th year, they have a one week non-examinable posting in radiology. A survey was administered to preclinical (new curriculum) and clinical (old curriculum) students. Survey responses were tabulated and attitudes between preclinical and clinical students were compared. **Results:** More than half of the preclinical students (155 out of 270 students, 59%) and 90 out of 720 clinical students (12.5%) responded. Students exposed to the new curriculum had attended one or two dedicated radiology lectures and were considering radiology as a clinical elective. Both groups of students did not feel familiar with radiology as with other specialties, were not considering radiology as a career, but felt that radiology was interesting and important to the overall practice of medicine. **Conclusions:** Exposure of 1st year students to radiology increases their interest in the subject. Further intervention, fine-tuning of the curriculum and follow-up surveys will be carried out to see if this interest persists throughout their clinical years.

Ann Acad Med Singapore 2010;39:692-95

Keywords: Curriculum, Medical School, Undergraduate

Introduction

Radiology is not a popular specialty for undergraduate student electives or postgraduate training amongst students from a local undergraduate medical school which is based in Southeast Asia. During the last 2 years (2007 & 2008), none of our elective students came from the local undergraduate medical school.¹ During the May and November 2007 intakes of radiology medical officers (MOs) in our department, 1 out of 5 1st year MOs was a graduate from the local undergraduate medical school.^{2,3} Similarly, during the May and November 2008 intakes, only 1 out of 6 1st year MOs was a graduate from the local undergraduate medical school.² The rest of our 1st year MOs were from overseas medical schools.^{2,3}

Radiology was introduced in the revamped 1st year

curriculum of the local undergraduate medical school in 2008 as it has been shown that early exposure would kindle medical students' interest in radiology.⁴⁻⁷ Currently in the old curriculum, medical students' contact with radiology is limited to 2 one-hour lectures in both their 3rd and 5th year as part of their medicine and surgery rotations. They also have a one week radiology posting in their 4th year.^{8,9} There are no assessments for these postings.⁸ These students undergoing the old curriculum are not exposed to radiology in the 1st and 2nd year of medical school. The authors who are staff of the academic radiology department of the local undergraduate medical school felt that this decreased contact time with medical students could be one of the causes for their lack of interest in radiology.

We conducted a survey to see if the introduction of a new

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curriculum with exposure to radiology in the 1st year would make any difference in generating interest in the subject. The purpose was to compare the attitudes of preclinical (1st year) and clinical (3rd, 4th and 5th year) medical students towards radiology with the hypothesis that greater contact time with radiologists would increase the level of interest in the subject and thereby encourage greater uptake of student electives and presumably greater uptake of postgraduate radiology traineeships.^{10,11}

Materials and Methods

The new 1st year medical student curriculum introduced in 2008/9 comprises 13 one-hour radiology lectures which are integrated into the syllabus. Each radiology lecture is given at the end of a lecture series based on the body systems. For example, the lecture "Radiology of the Upper limb" is given at the end of the upper limb module where a designated radiologist will teach students normal radiographic anatomy and show radiographic examples of pathology. It is also impressed upon the 1st year students that these lectures are examinable which further captures their interest and attention. The series of 13 one-hour lectures were given by 5 consultant radiologists who are clinician educators or clinician scholars with protected time for teaching and preparation of educational material.¹² These lectures were given in a standardised format.^{13,14} Pre- and post-tests were administered before and after the lectures for the upper and lower limb modules to document whether students were able to assimilate the lecture material. After this series of lectures, 5 radiological anatomy questions were contributed by the authors to the Objective, Structured, Practical Examination (OSPE) of the anatomy paper for the 1st medical undergraduate professional examination.

The current 3rd, 4th and 5th year students for the year 2008/9 continue with their limited radiology programme which is non-examinable. The 2nd year students for the year 2008/9 are not exposed to radiology.

In the middle of the academic year of 2008/9, a six-question survey with 5 choices was administered to medical students. This anonymised survey was modelled after the survey used by Branstetter IV et al⁴ in their study of preclinical medical student training in radiology. Survey forms were distributed to students at the start of their lecture and collected at the end. Survey responses were tabulated and the attitudes between pre-clinical and clinical students were compared using the Mann-Whitney rank sum tests.

Results

More than half of the 1st year (155 out of 270 students, 59%) preclinical medical students responded to the survey. Ninety clinical students (90 out of 720 3rd, 4th and 5th year students, 12.5%) undergoing the old curriculum completed the survey.

The survey questions and results are summarised in Figure 1.

Preclinical students (54.8%) undergoing the new curriculum answered that they had attended one or two dedicated radiology lectures compared to 34.4% of their clinical counterparts (question 2). Also, 60.7% of preclinical students were considering radiology as a student elective compared with 20.6% of clinical students (question 5). This includes the students who answered "maybe", "probably" and "definitely" to question 5, "Are you planning to do your elective in radiology?" These were statistically significant ($P < 0.05$) using the Mann-Whitney rank sum test.

Both groups of students did not feel familiar with radiology as with other specialties, with the majority of students having only some ideas about radiology (preclinical students 82.5%, clinical students 82.2%) (question 1). Majority of students from both groups were not considering radiology as a career with only 7.7% of preclinical students and 13.1% of clinical students thinking of doing radiology in the future (question 5).

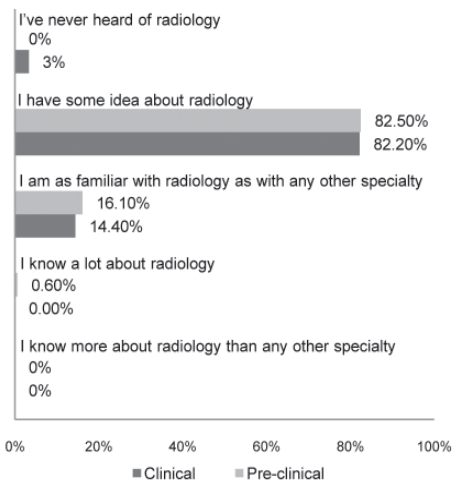
However, both groups of students felt that radiology was interesting (preclinical students 80.6%, clinical students 75.5%) (question 3) and important to the overall practice of medicine (question 6).

Discussion

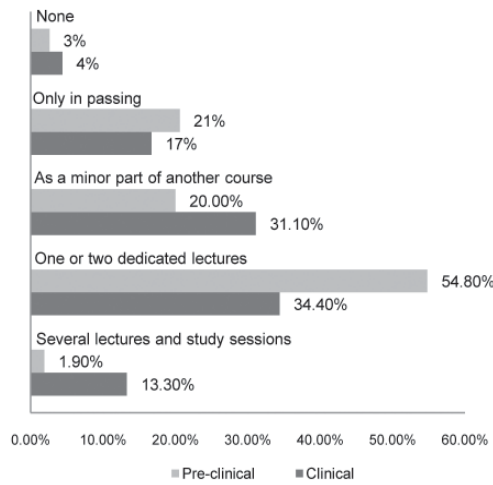
Early exposure of 1st year medical students to radiology has previously been reported.^{4,7,15,16} Branstetter IV et al⁴ did a similar survey in 2003 and showed that exposing 1st year medical students to radiology improved their impression of radiology as a specialty. In their study, comparisons were made between 1st and 2nd year medical students. The 1st year students had undergone a revamped curriculum with the introduction of radiology lectures and consultation sessions as part of problem-based learning with additional radiology lectures (2.5 hours) and integrated radiology consult sessions in the problem-based learning sessions.^{4,17} The answers showed statistically significant improvement in the 1st year students' attitudes to radiology, compared to 2nd year students.

In the local undergraduate medical school, we have newly introduced 13 hours of didactic lectures to 1st year medical students and compared their attitudes with their clinical counterparts undergoing the old curriculum. Radiology is an inherently unpopular specialty amongst our local undergraduate medical students with no uptake of student electives in the 2007 and 2008 cohorts in the academic department of radiology.¹ In addition, the minority of our 1st year radiology medical officers are graduates from the local undergraduate medical school.^{2,3} This could be attributed to the poor exposure and marketing of the specialty and hence the need for our increased participation in undergraduate

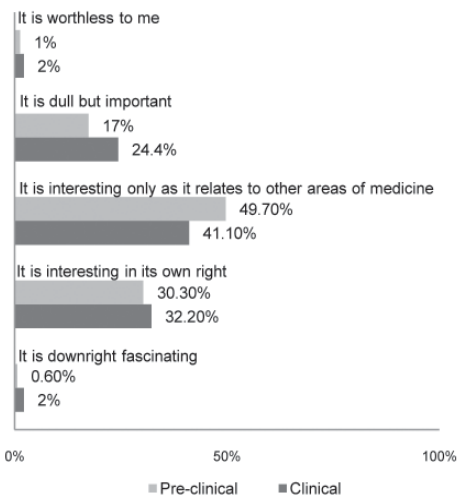
Qn 1 How much do you know about radiology?



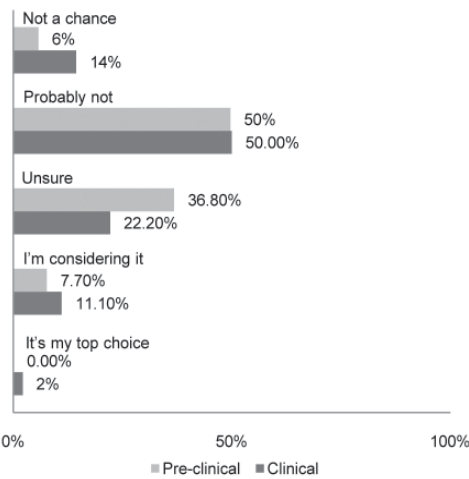
Qn 2 How much radiology have you been exposed to since you entered medical school?



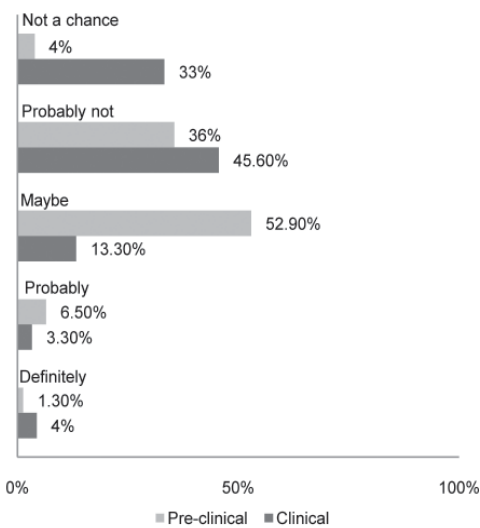
Qn 3 How interesting is the subject matter in radiology?



Qn 4 Are you considering radiology as a career?



Qn 5 Are you planning to do your elective in radiology?



Qn 6 How much impact does radiology have on other areas of medicine?

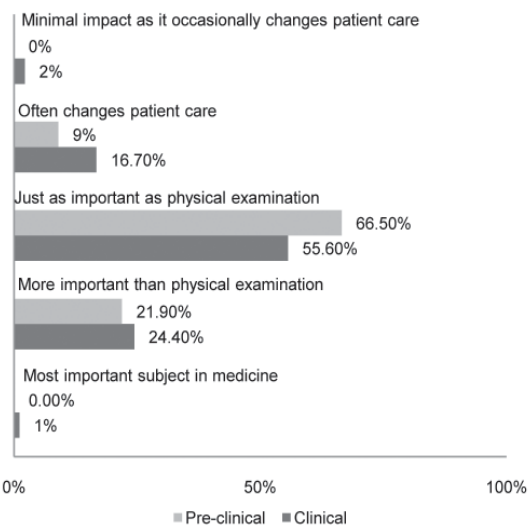


Fig. 1. Survey questions and comparison of results between preclinical and clinical medical students (%).

medical education. This situation is unlike that in the United States of America where the top tier of medical students apply for radiology residencies.^{4,18}

Our study shows that there is significant increase in interest in radiology student electives amongst 1st year medical students following the introduction of the new curriculum. This could be because the radiologist is one of the first clinical lecturers that the students have been exposed to other than preclinical lecturers in anatomy, biochemistry and physiology. It is also noticed that preclinical students tend to seek clinical teaching amidst their basic science courses.^{4,19,20} There are also significantly more 1st year students who attended one or two radiology lectures, probably because the content is now examinable.

It is also encouraging to find that both groups of medical students indicated that radiology is interesting as a subject and feel that radiology is important in the overall practice of medicine. A possible reason for this in preclinical students could be early exposure to the subject. For the clinical students, given the increasing clinical role of radiology, they probably were exposed to imaging as part of their medical or surgical postings.

However, majority of preclinical and clinical medical students have indicated that they are not as familiar with radiology as with other specialties and are not considering radiology as a career. This indicates that more needs to be done to generate greater interest among medical students in this subject.

There are several limitations to this study. Firstly, the response rate between the preclinical and clinical groups differed (59% vs 12.5%). The reason for this is that in the old curriculum, the clinical students are distributed to different hospitals in the country and we could only survey those students who were attached to our hospital. Secondly, we are comparing a homogenous group of 1st year preclinical medical students with a mixed cohort of 3rd, 4th and 5th year clinical students who may have had different experiences in different hospitals. Other limitations include variability in the teaching styles of consultant radiologists and their level of interaction with medical students.

In conclusion, our findings concur with an earlier report that introduction of radiology to 1st year medical students increases interest in the subject.⁴ A follow-up survey will be done to determine if we have made further inroads given that this same cohort is currently in their 2nd year and we have newly introduced 7 hours of didactic radiology lectures into their curriculum for the academic year of 2009/2010. We will also follow-up these students and their successors to see if further intervention and fine-tuning of curriculum are needed so that this interest persists throughout their clinical years.

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