Interventional Radiology Symposium for Medical Students: Raising Awareness, Understanding, and Interest

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CLINICAL PRACTICE CONCERN: BACKGROUND

Interventional radiology (IR) is a dynamic medical specialty that utilizes nearly all forms of radiological imaging to diagnose and treat a myriad of disease processes with minimally invasive procedures. IR has been recognized by the American Board of Medical Specialties (ABMS) as a subspecialty of diagnostic radiology since 1994. Over the years, the specialty has undergone a rapid evolution, with less stress on image interpretation skills, and an increasing emphasis on the larger role that the interventional radiologist should have in longitudinal patient care. This progression culminated in ABMS approval of IR as a primary medical specialty, in 2012. In late 2014, the ACGME approved the residency training program requirements for an IR residency.

Although some medical schools offer a dedicated IR clerkship, as few as 5.5% of medical students participate in the elective rotation [1]. Over the past decade, interest has been growing in the specialty of IR, with a resultant significant increase in the number of individuals applying for training [2]. However, the levels of exposure of medical students to IR and understanding of the specialty remain low [3]. Additionally, other medical specialties routinely perform minimally invasive, image-guided procedures that overlap with those performed by interventional radiologists; therefore, it can be very confusing for medical students to understand when and how IR physicians are involved in patient care [4]. Early exposure to IR through introductory lectures has been shown to increase medical students' understanding of IR and interest in pursuing the specialty as a career [5].

With the impending implementation of a new IR residency, the current paradigm in which diagnostic radiology residents choose to train in IR through a subspecialty fellowship after residency will eventually no longer be utilized. Medical students will be required to choose IR through the residency match process, in a manner similar to that for choosing a training pathway in diagnostic radiology. Therefore, educating medical students on the IR specialty early in their training is an important challenge [6].

STUDY PLAN

Given these impending changes, and the substantially contracted timeline for medical students to pursue training in IR, we reached out to medical students in an organized manner, to educate them on the specialty of IR. Our goal was to understand if a dedicated, one-day symposium introducing medical students to the specialty of IR would increase their understanding of and interest in pursuing IR as a career.

Interventional Radiology Symposium Curriculum Development and Implementation

The Department of Radiology at our large, medical school—affiliated hospital supported the Division of Interventional Radiology in developing and implementing a one-day IR symposium. It was advertised via the department's website, local medical school newsletters and e-mails, national and local organized medical societies, and social media.

The curriculum included didactic lectures, "hands-on" mentored training, and simulated cases that were developed in conjunction with our institution's simulation laboratory and industry representatives. The curriculum was designed to emphasize the history, tools of the trade, and breadth of procedures encompassed by IR, as well as the clinical responsibilities of IR, which now include direct patient care and participation in multidisciplinary teams. The agenda was arranged so

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that the symposium began with an introduction to IR and the imminent changes in IR residency and fellowship education. This introduction was followed by lectures focused on examples of various disease processes treated by our institution's IR department.

After the lectures, the students were divided into two groups. One group was invited to practice IR cases in a simulation laboratory; the other group was directed to participate in "hands-on" workshops that included cryoablation devices, microwave ablation devices, endovascular catheters, embolization devices, and aortic endografts [7-10]. A phantom-based ultrasound-guided biopsy station component of the workshop that was supervised by IR fellows in training provided attendees with an opportunity to simulate image-guided biopsies.

The groups reconvened for a "lunch and learn" panel discussion with the current IR fellows in training and the IR attending staff, along with radiology residents and medical students who were interested in IR. During this session, the attendees were given the opportunity to pose questions to the panel discussants on issues ranging from work-life balance as a resident and/or fellow to the projected impact of health care reform on IR.

Survey Assessment

A presymposium survey was sent to all medical students who registered for the symposium. This survey collected demographic data and included questions about the students' familiarity with IR. The familiarity questions were measured with a 6-point Likert scale. The postsymposium survey, which was sent to the participants after the event, asked the same familiarity questions as the presymposium survey and included questions about the event itself. All of the postsymposium survey questions were measured with a 6-point Likert scale.

OUTCOMES

Symposium Attendee Demographics

A total of 119 medical students, representing 19 medical schools, registered for the event. Most registrants (79 of 119) were enrolled in Boston-area medical schools, but several attendees traveled farther distances, including two attendees from Florida who traveled to Massachusetts for the event. Before the symposium, 36 medical students completed the presymposium survey. After the event, 21 medical students filled out the postsymposium survey.

Of the 36 medical students who completed the presymposium survey, 9 were 1st-year medical students, 11 were 2nd-year students, 7 were 3rd-year students, and 9 were 4th-year medical students. Men constituted the majority of presurvey participants, with 61% filling out the survey, compared with 39% who were women. Most medical students (55%) learned about the symposium from their dedicated medical school newsletters or e-mails. Word-of-mouth from classmates and social networking (17%) were the second most common sources for learning about the symposium. An overwhelming majority of students reported that their medical school offers a radiology clerkship (92%).

Survey Results

Before attending the symposium, when asked if they understand what an interventional radiologist does, 83% of students agreed, with 14% strongly agreeing that they understand the interventional radiologist's job responsibilities. After the symposium, a statistically significant increase was found in this percentage, with agreement from 100% of students who filled out the postsymposium survey, including 67% who strongly agreed (Fig. 1). When asked if they knew when to consult an interventional radiologist for patient care, presymposium 57% of medical students felt that they knew, but only 5% strongly agreed. Postsymposium survey results reveal a statistically significant improvement, with 100% of medical students agreeing that they know when to consult an interventional radiologist for assistance with patient care; 48% strongly agreed.

Presymposium survey results indicated that 66% of medical students understood the diseases and medical concerns that interventional radiologists may manage, with 8% reporting a strong understanding. After the symposium, 100% of medical students reported an understanding of the disease processes that an interventional radiologist may manage, with 57% reporting a strong understanding.

Presymposium, a total of 88% of medical students agreed that they know the difference between diagnostic radiology and IR. However, only 29% of medical students strongly understood the difference. Postsymposium survey results indicate that 100% of medical students had an understanding of the difference between the diagnostic radiology and IR, 86% with a strong understanding, which is statistically significant.

Before the symposium, 91% of medical students indicated that they