

Curriculum of Interventional Radiology for Clinical Medical Undergraduates

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Interventional radiology (IR) is a clinical medical specialty which uses minimally invasive image-guided procedures to diagnose and treat disease.^[1] IR was introduced in China during the 1980s. It is a rapidly expanding field and has become an integral part of medical care. The Chinese Society of Interventional Radiology is one of the largest societies for IR in the world.^[2] However, there is no independent IR curriculum among clinical undergraduate programs in China, which is not helpful for clinical medical undergraduates to improve their cognition for IR. In this article, we report our initial experience of the IR teaching curriculum and discuss whether awareness and interest of IR could be improved by a systematic study of IR curriculum among clinical medical undergraduates.

During the autumn semester of the academic year 2009, IR curriculum was implemented as an elective course for fourth-year clinical medical undergraduates at our university. The curriculum was offered by a traditional face-to-face teaching method with 22 lectures. The IR curriculum has been hailed as a welcome innovation: more and more students have taken IR curriculum as an elective course during the past academic years (58.9% in 2009, 74.0% in 2010, 96.3% in 2011, and 100% during 2012–2014). An anonymous questionnaire was sent to students to assess the awareness, interest, knowledge, and career prospects for IR. Participants comprised 200 final-year clinical medical undergraduates (interns), which were consisted of 100 interns receiving education in IR and another 100 interns receiving no education in IR at two universities in 2015.

Results of the survey showed that 89.2% of the respondents thought that it was necessary to implement IR curriculum among clinical undergraduate programs. Students with

poor knowledge in IR (except percutaneous coronary intervention [PCI]) could benefit from studying IR curriculum (65.9% vs. 18.0%). Most of interns believed that the career prospects for intervention radiologist were good (79.5%). However, few of interns were willing to take IR as a lifelong career. Some interns did not choose IR as a lifelong career as a result of lack of knowledge on IR (15.4% [12/78] among interns receiving education in IR and 34.7% [26/75] among interns receiving no education in IR).

In China, IR has become the most promising new specialty among all of the medical specialties, which plays an integral part of modern medicine since the 80s of last century. IR has expanded its advantage in the clinical practice: fewer risks and a much shorter recovery time. However, comparing with the reality of IR in the West, China also has similar challenges, such as shortage of independent IR curriculum in clinical medical undergraduate programs.^[2,3] There are just only 2–4 lectures as one part of the medical imaging teaching for clinical medical undergraduates. The curriculum cannot cope with the development in IR technology, and this shortage may not meet the needs of the current clinical practice. Changing needs of modern medicine necessitate constant changes in medical school curricula. Medical schools should offer more IR curricula to make sure it is in touch with the needs of the current medicine.

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In the European surveys, a total of 66% reported poor or no knowledge of IR.^[3] We also found the similar results, with 65.9% among interns receiving no education in IR. However, this phenomenon could be changed by IR curriculum teaching. Most of students felt their knowledge good among students receiving IR curriculum. Interestingly, all the students knew about the PCI in our survey whether or not receiving IR curriculum. Why? In China, medical students acquire the knowledge of PCI mainly from cardiologists. Cardiologists mainly engage in cardiovascular interventional therapy and it is impossible for cardiologists to introduce whole knowledge of IR. Therefore, most of the students receiving no IR curriculum felt their knowledge poor or none except PCI. This is not helpful for students to systemically master the knowledge of IR and engage in medical work in the future. Physicians without knowledge of IR will not take the initiative to introduce patients with minimally invasive intervention therapy, and the patients will receive traditional, wound greatly treatment method. IR teaching can impact students on the role of IR and their treatment strategies of patients in the future.

IR should be an independent curriculum that so much of clinical practice demands. In this survey, the majority of respondents thought that IR curriculum was important as many other medical course. During the first semester within the fourth year of the five-year clinical undergraduate student, the students have a solid enough medical foundation to understand IR. Meanwhile, students start to learn medicine, surgery, gynecology, and pediatrics and they can integrate their knowledge with IR. However, IR is different from traditional medical curriculum and involves many clinical disciplines. Students should spend enough time to study it and we think 20–22 lectures may be suitable. The main content of IR curriculum should include basic knowledge, vascular interventional therapy and none vascular interventional therapy.

In this survey, the career prospect for interventional radiologists was considered as well in the majority of respondents. However, few of the respondents were willing to pursue a career in IR. This phenomenon in China is lower

than North America.^[3,4] Most of students who choose medical specialty want to be a surgeon or physician in China. Another reason for students not willing to take IR as their lifelong career was lack of the knowledge of IR in our survey, and that should be reversed by IR teaching. The exposure of students in IR curriculum will improve their impression of IR as a major and increase their interest in IR as a lifelong career.

Some limitations of our survey deserve mention. There is a bias that students are likely to be more interested in the topics and therefore more willing to complete the survey. The survey is limited to two Chinese universities with small sample size.

In conclusion, lack of knowledge of IR among the clinical medical undergraduates can be changed by IR curriculum teaching. We hope that the educational services could add IR curriculum as a compulsory course among clinical medical undergraduates in the future.

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Conflicts of interest

There are no conflicts of interest.

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