A career in academic cardiology

Introduction

Cardiology represents a unique blend of hands-on practical application combined with sound physiological principles supported by a vast and continually evolving evidence base. Entry into cardiology specialty training is one of the most competitive of all the medical disciplines in the UK. If successful, trainees are expected to gain a postgraduate research-based MD or PhD along the way. A huge emphasis is placed on research for those aspiring to a career in cardiovascular medicine. This article is geared towards those trainees actively considering a long-term career in academic cardiology. Drs Niki Margari and Aung Myat interview Professor Peter Weissberg and Professor Simon Redwood to find out their views on academic cardiology in the UK.

Academic cardiologists Peter Weissberg and Simon Redwood

Is academic cardiology for you?

So what if you find yourself developing an interest in cardiovascular research? We asked Professor Peter Weissberg (PW), Medical Director of the British Heart Foundation, and Professor Simon Redwood (SR), President of the British Cardiovascular Intervention Society and Professor of Interventional Cardiology and Honorary Consultant Cardiologist at King's College London and Guy's and St Thomas' NHS Foundation Trust, for their thoughts on this topic.

What attracted you to academic cardiology?

PW: It is in my nature to want to understand what is behind the treatments and diagnoses and to try to get at basic mechanisms of disease. I was driven by wanting to be involved in the development of the story, rather than being the instrument that did something about it after the story had already been told.

SR: When I did a fellowship in the USA, most patients were enrolled in research studies and I found it both fascinating and enjoyable. Being involved in clinical research means you are at the forefront of advances in what is a very rapidly moving specialty.

What are the pros and cons to a life in academia?

PW: I think the freedoms and career opportunities are much greater than they are for National Health Service (NHS) clinicians and that trend is going to get greater as NHS management becomes more rigorous in trying to squeeze more bang for buck.

I don't think there are many 'cons' other than perhaps the difficulty of getting into a long-term secure position, which is inherent in academic posts. The only other downside would be the financial one, where it is perceived that academics are disadvantaged compared with NHS consultants. In fact, academics tend to do better in the Clinical Excellence award scheme. As you move up the ladder, the chances of your income increasing are somewhat better than for your NHS colleagues. You cannot necessarily compensate for the very large private practice of some NHS consultants, but income from lectures, writing and consultancies can enhance earning potential substantially. Most universities also allow their academics to undertake a limited amount of private practice.

SR: The theoretical cons are that you are accountable to both the clinical unit and the university and you may be required to produce minimum outputs in terms of publications or grant income. However, if you see these as cons, then academic cardiology is not for you! The benefits far outweigh these and are numerous – being able to supervise and help trainees and potential future researchers is incredibly rewarding; the challenge of performing intricate clinical studies; being asked to participate in development and testing of new devices, etc.

Can you have an academic career alongside an NHS career?

PW: Yes, absolutely, particularly if your academic activities are clinically based. If you are a laboratory scientist, you can still do it. It is tougher, but there are good examples at the moment of professors of cardiology who are leading world-class basic science laboratories who also do their stint on the primary percutaneous coronary intervention (PCI) rota very successfully.

In these times of austerity how do you think funding for research has faired?

PW: So far, funding for research has faired remarkably well given the current financial climate. Government-funded research has been maintained through the Medical Research Council (MRC) and National Institute of Health Research (NIHR). Some charities, particularly the British Heart Foundation (BHF), have also done quite well over the last few years. We did reduce our funding about three years ago because we were anticipating a fall in income. Actually, our income has carried on going up year on year, but the rate of rise has certainly slowed. Last year our research spend broke £100 million for the first time. So at the moment, there is probably as much research money around as there has ever been.

For a candidate to be successful in academia, does it all boil down to the number of publications?

PW: Absolutely not, it is nothing to do with quantity but everything to do with quality. So somebody who has 10 publications in low-ranking journals, none of which is based on a very rigorous scientific process, is not going to do as well as somebody who has two or three publications

in leading, high-impact journals – *Nature* or *Science*, if you are a scientist, or *The Lancet* or *The New England Journal of Medicine*, if you are a clinician.

What are your top tips on getting published?

PW: You have got to work with the right people, in the right place. If you work for somebody who is the current leader in a particular field and is the person who is the most respected authority in that field, then it is almost inevitable that you will end up with quality publications. If you try to do something *de novo* in a department with a supervisor who has no experience in that area, your chances of being able to produce world-class publications are very limited. Just as with your clinical training, therefore, be ambitious and seek to work with the best.

What is the best way of securing that clinical research fellow post?

PW: I think the best way is to have a reasonably clear idea of what field you wish to do your research in, whether you want to be in a clinical environment or basic science laboratory. You need to do a bit of homework on which places in the UK are leading in those areas and talk to the researchers there. Look for the departments that have the best track record on nurturing their research fellows; i.e. those where the research fellows tend to progress to academic posts at the end of their PhDs. Take advice. Ask various people and don't necessarily be seduced into doing research with the first person who offers a research position to you.

How can you differentiate between a good research centre and a bad research centre?

SR: Have a look at the supervisors, the infrastructure, the outputs (publications and higher degrees); speak to current and past fellows to get a feeling for the unit. Also look at how long fellows took to obtain their degrees.

What makes for a good research supervisor?

SR: Someone who has a genuine passion for what they do and takes a genuine interest in their fellows and their respective futures.

PW: Somebody who is concerned with conducting really world-class science and ensuring that you get good research training and mentorship. In other words, somebody who is going to make sure that at the end of your two or three years of research, you will be equipped to undertake research yourself as opposed to just having helped your supervisor get their next paper. You need to be sure you go to a supervisor who has got a track record of training researchers, whether it be clinicians or basic scientists.

What are your thoughts on the basic science versus clinical research issue?

PW: I don't think there is an issue. Quite simply, you should do what you feel most able and keen to do. If it is laboratory science then what you absolutely must do is make sure you go somewhere where you can be properly trained. What you cannot do is dabble in it. If you opt for laboratory science, you are going to be competing in your future research work with career scientists. You have got to be as good as they are if you are going to be competitive. The problem with clinical research training is that, over recent years, it has been quite hard to find a good clinical research department where you can be trained in new research techniques and applications, but with the current emphasis on translational research, I think the situation is improving.

Is there such a thing as good research and bad research?

SR: Of course, but doing a period of research is much more important than not doing any. 'Bad' research usually implies a 'bad', or non-existent, supervisor. 'Bad' does not mean research with a negative outcome: negative studies, if performed well, are just as important as positive ones.

PW: Absolutely, yes, there is good research and there is certainly bad research, and it is not a case of bad research being better than doing no research at all. Doing bad research is potentially harmful to your career.

In your opinion, when is the best time to conduct a period of research towards an MD or PhD – before or during formal cardiology training?

SR: I don't think there is a single 'best' time and it depends on your career aspirations. Research carried out before formal training is less likely to be in the sub-specialty you may end up in. For a sub-specialty such as intervention, the best time would be when you are fully trained in, at least, diagnostic angiography (and ideally some second operator experience in coronary angioplasty) so that you can get involved in the research, rather than rely on others. In addition, it makes it more likely that you will be doing research into something you have a genuine interest in rather than being 'given' a project you have little prior knowledge of, nor interest in. Obviously, this also means the research is more likely to be successful.

PW: If you are somebody who has a general interest in cardiology but have not yet really defined what your sub-specialty interest is, then I think you are much better off doing your research after you have got your training number secured, because that gives you the opportunity to immerse yourself in the subject and also time to look around and ask the questions you need to ask before you do research. For instance, who is the best person in the field you want to be in and how can you get a research fellowship with that individual. If you jump into research before you have had that opportunity, then you run the risk of choosing the wrong research topic in the wrong place.

Do you feel prospective cardiology trainees are using periods of postgraduate research to ensure they stand the best possible chance of attaining a National Training Number?

PW: I think there has always been a culture of doing research because it is needed for the CV. I think that is probably less so now than it used to be because you can get non-academic jobs without necessarily having done a formal period of research training. If you want an academic career, or if you want to work in a major teaching hospital, then it is inevitable that you are going to have to have done something in addition to your standard clinical training and that will have to be research orientated. I would say the discriminator will not be whether you have done research or not, but whether or not you have done good-quality research. All too often trainees take up an ill-advised research post and end up with a two- or three-year period of research on their CV but no output from it. That is damning and they will struggle to get a job anywhere.

SR: Unfortunately, yes, in some cases, but usually we can see through that. The trainee who shows no interest in continuing to be involved in clinical research studies, and doesn't publish beyond their period of research, may fall in that category!

What do candidates need to have on their CVs to stand a good chance of attaining a recognised academic specialist registrar post?

PW: The better the undergraduate CV, the greater their chances are. So if they have done a BSc and got a first, they'll find that clearly helps. On the other hand, having a straightforward medical degree is not a bar to a good academic career because you can show that you developed at a later stage. The key is to do good research at the MD/PhD level with a good supervisor and get yourself known as somebody who really is at the cutting edge of that particular area. The next step is to get yourself an Intermediate Fellowship – which allows you to continue your research and complete your clinical training. Attaining a personal fellowship shows that you are not dependent on your supervisor. You also need to be flexible enough to consider going abroad to gain experience with a research leader in your particular field. There is no doubt that people who go overseas come back with a perspective and a maturity that they wouldn't otherwise have. Some funders, the Wellcome Trust for instance, will almost not consider you for an Intermediate or Senior Fellowship if you have not been abroad or are not planning to go abroad as part of your research training. The BHF is less prescriptive, but there is no question that it provides an important stepping-stone.

Has a period of postgraduate research become the panacea to a successful career in cardiology?

PW: It depends how you define a successful career in cardiology. It is a perfectly successful career in cardiology if you go to a district general hospital and provide an excellent clinical service. You don't need a shed load of publications and research output to do that. If you want a successful academic career, then you absolutely have to demonstrate that you are at, or have the potential to be at, the cutting edge of your chosen field of research. There is no point in entering research without the ambition to lead in your particular field, because there are few plaudits for those who are 'also rans'. You need to have confidence and ambition and be working in an environment where what you do is likely to add new knowledge and change practice.

What is being, or should be, done to encourage more cardiology trainees to enter and stay in academia?

PW: We and other research funders now have very attractive career track research fellowships for people who are good and are working in the right places. So I don't think anybody should be concerned about the lack of available funding. These fellowships are necessarily competitive but if you have got a training number you always have the reassurance that you can go back to routine clinical training if, for whatever reason, research doesn't work out for you. The NIHR Lectureship programme is thriving; we are starting to see good people coming out of that now. At the moment, there is a reasonable number of academic senior posts around, although the squeeze on university funding may affect these. And the other interesting thing that a trainee will find is that if they are serious about research, and they go to the right place and get the right training, they will very quickly shift from somebody who feels they're competing against hundreds for everything that comes up, to somebody who is being courted and enticed by different departments to go and join them. That happens quickly once you start to show an aptitude for research.

SR: Not enough – the odds are still stacked against clinical academia in general, but the rewards can be great if you're prepared to work at it.

What are the current job prospects in academia after middle grade training?

SR: If you want to do it, they're great. You don't need to be appointed into a specific academic post. Many good clinicians build up a good research infrastructure – the key is wanting to do it and having the hunger to succeed.

PW: At the moment our problem at the BHF is that, while we have a lot of basic scientists coming through at Intermediate and Senior Fellowship level, we are not getting enough applications from clinical scientists. That doesn't mean to say that they are necessarily easy to get, but there is certainly the capacity to fund more of them.

Conclusion

Both clinical and academic cardiology are highly competitive but also hugely rewarding fields. The infrastructure, funding and opportunities are clearly there for the taking but training numbers and academic posts certainly won't fall into your lap and hard work, alone, won't get you there. You must seek help from the right people, work in the right place and undertake research at the right time if you aspire to a career in academic cardiology

Further information

British Heart Foundation website: http://www.bhf.org.uk/

British Cardiovascular Intervention Society website: http://www.bcis.org.uk

British Cardiovascular Society website: http://www.bcs.com/

Heart Research UK website: http://www.heartresearch.org.uk/

NIHR website: http://www.nihr.ac.uk/

The Wellcome Trust website: http://www.wellcome.ac.uk/

Medical Research Council website: http://www.mrc.ac.uk/index.htm

Research in Cardiology 2012 National Symposium: http://www.bcs.com/pages/page_box_contents.asp?PageID=758

Conflict of interest

None declared.

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