Spotlight: Tony Gershlick, BSc, MB, BS, FRCP

The First to Implant a Drug-Eluting Stent in the United Kingdom, and Involved in Research That Showed How to Best Manage Patients in Whom Thrombolysis Had Failed

Tony Gershlick, professor of interventional cardiology at University Hospitals of Leicester, Leicester, England, and consultant cardiologist at Glenfield General Hospital, Glenfield, Leicestershire, talks to Mark Nicholls.

Tony Gershlick, BSc, MB, BS, FRCP, professor of interventional cardiology at University Hospitals of Leicester, Leicester, England, and consultant cardiologist at Glenfield General Hospital, Glenfield, Leicestershire, is a cardiologist who loves every moment of his job. If asked what his future plans are in cardiology, he enthuses, “More of the same.” “It is such a fabulous job,” he says. “Every day is different and inspirational with something new happening; dealing with patients, going from a 3-hour chronic total occlusion case to sitting in outpatient, talking to a 78-year-old lady with atrial fibrillation, and then coming back and having a research meeting. You could not ask for more variety.”

Yet when Professor Gershlick’s medical career began in the early 1980s, he had no intention of becoming a cardiologist. “The reality is that it happened by chance,” he says. After training at St Mary’s Hospital in London, England, and working as a junior doctor at Guy’s Hospital in London, his ambition was to become a nephrologist, but when he came to seek a middle-grade post, no renal jobs were available. He recalls, “In the meantime I went to the National Heart Hospital to work as a junior doctor in cardiology, and then, when there were no posts in renal medicine at an intermediate level and because I needed to pay my mortgage, I extended my junior doctor’s job at the National Heart Hospital for another 6 months. I then extended it for another 4 months, and by that time I was converted into a cardiologist. So I gave up on nephrology and took an intermediate job in cardiology at The London Hospital.”

In that time, the post had become much more than a job of convenience. Professor Gershlick’s interest in cardiology deepened, helped by the inspirational clinicians he met and worked with at the hospitals in London, many of them “fantastic general cardiologists” and of the “old school, old style” genre. Professor Gershlick reflects on working alongside Tony Rickards, MD, FRCP, FACC, FESC; Wallace Brigden, MD, FRCP; Peter Mills, FRCP, FESC; Aubrey Leatham, FRCP; and Sir Magdi Yacoub, MD, FRCS, FRCP. Professor Gershlick says, “The National Heart Hospital was a place of absolute inspiration. People like Magdi Yacoub were there when I was there. It was not just that I could not get a renal job. These people were inspirational in the way they can change your career. On the basis of that, I decided to stay in cardiology.”

When Professor Gershlick moved to the London Chest Hospital in 1984 as a senior registrar, his mentor was the late Raphael Balcon, MD, FRCP, who together with Martin Rothman, MD, FRCP, FACC, FESC, had a significant impact on his career and outlook as a cardiologist. Professor Gershlick was already developing a strong research interest, looking at the interaction between coronary physiology, remote ischaemic preconditioning, and coronary virtual histology.”
Gershlick says, “I think the reality is that one is a clinician national, and international collaborative trials. Professor Young Investigator Award. His ongoing research interests of clinical trials.” In 1984, his early research into platelets and the vessel walls, and he became involved in clinical studies. Being in this environment also offered him the opportunity to be present at the first angioplasty procedures carried out in the United Kingdom as an interventional cardiologist at the London Chest and National Heart hospitals. He recalls, “Martin Rothman was doing cases very early, and as a senior registrar at those 2 hospitals I became involved early on in angioplasty and with all the developments of antiplatelet therapy and balloons.”

Between 1989 and 1993, Professor Gershlick worked in Leicester as a senior lecturer in the University’s Department of Academic Cardiology, where Professor David de Bono, MD, FRCP, became his academic mentor. He says, “I was already doing clinical science and trials, but David de Bono was my mentor when I got to Leicester and he really got my clinical science career underway.”

Since 1993, Professor Gershlick has been a consultant cardiologist for the National Health Service, but he has also carried on with his academic work. He remains an active consultant cardiologist, carrying out up to 300 angioplasties a year, with 3 catheter laboratory sessions a week, and training and teaching angioplasty. He is very much hands on and involved in the development of chronic total occlusion and other complex angioplasty.

“\textit{You See Problems Occurring and Questions Being Raised About How We Best Manage Patients}”

Research has always been important to Professor Gershlick, and it remains an essential part of his work week. He says, “I am interested in asking the clinical question and then going to the research laboratory to investigate ways of finding an answer, as well as being at the receiving end of others’ basic research by conceiving and being part of clinical trials.” In 1984, his early research into platelets saw him become a finalist in the British Cardiac Society’s Young Investigator Award. His ongoing research interests range from basic research in areas such as angiogenesis, local drug delivery, and coronary stent evolution, to local, national, and international collaborative trials. Professor Gershlick says, “I think the reality is that one is a clinician first and foremost but you see problems and issues occurring and questions being raised about how we best manage patients. If I am unclear about how a patient can best be managed or if I think there is an issue that needs addressing and it is a clinical research question, then I discuss it with others and try to devise clinical trials or pilot studies. For example, at the moment, we are looking at primary angioplasty for ST-elevation myocardial infarction to see whether giving vasodilators distally improves the outcome by attenuating microvascular obstruction. The trick about research is that you understand what sort of study needs to be initiated to produce an answer to the question being asked. You tailor the way you answer a clinical question according to what the clinical question is. Ask the question and go off and answer it with the appropriate early study design (if possible).”

Professor Gershlick enjoys all his research work, but having 5 consecutive research fellows looking at the development of drug-eluting stents and their biocompatibility was a particularly exciting period of work in the late 1990s and early 2000s. A firm believer in collaboration, Professor Gershlick has been involved in a number of studies in the United Kingdom and Europe, including the Suggest Safety, Efficacy of Autologous Stem-Cell Therapy for Treating Congestive Heart Failure (SEISMIC) trial, the Rescue Angioplasty versus Conservative Treatment or Repeat Thrombolysis (REACT) trial, the European evalUation of pacliTaxel Eluting Stent (ELUTES) trial, and the FAC-TORS trial (a study of triple versus dual antiplatelet therapy looking at the bleeding risk of warfarin and aspirin). He feels that the REACT trial is among his most important research contributions because it helped change the way patients in whom thrombolysis had failed should best be managed. He says, “Before then, there was not a good study that told us how we should manage patients...
who after thrombolysis had failed to reperfuse, but REACT told us that there was really only 1 way and that was rescue angioplasty. I am particularly proud of this work.”

An article by others that has had most impact on his work is the RAVEL (Randomized Study with the Sirolimus-Coated Bx Velocity Balloon-Expandable Stent in the Treatment of Patients with de Novo Native Coronary Artery Lesions) study comparing drug-eluting stents with standard stents. 4 He says, “This article changed angioplasty in the modern era, showing that drug-eluting stents had such a low restenosis rate.” Drug-eluting stents took off at this point. In 2002 Professor Gershlick was the first to implant a drug-eluting stent in the United Kingdom, a procedure shown on the BBC TV programme “Tomorrow’s World.” But just as 1 clinical door opens, potential problems arise, and he has subsequently been involved in improving the biocompatibility of drug-eluting stents through research studies to understand the impact of late stent thrombosis.

“Sometimes the United Kingdom Misses Out on Developing Initiatives”

Professor Gershlick is a member of the steering committee of the National Infarct Angioplasty Project in the United Kingdom, which influences how primary percutaneous coronary intervention is rolled out across the country. He is also a member of the British Cardiovascular Society and British Cardiovascular Intervention Society committees and the medical expert on stents and drug-eluting stents for the National Institute for Health and Clinical Excellence. He says, “I find this committee work incredibly stimulating. It keeps you asking what is best for education, as well as what is best for patients.”

Professor Gershlick’s work is funded through commercial sponsorship and organisations such as the British Heart Foundation, but he says, “Funding for trials is a real issue in the United Kingdom. The process is very tough and sometimes the United Kingdom misses out on developing initiatives and innovation by slowness or lack of availability of funding, though the new NIHR [National Health Service National Institute for Health Research] will hopefully change some of this. Early considerations of the process change through NIHR are very encouraging.”

With regard to the future, Professor Gershlick says, “There are challenges with exciting times ahead and there are many areas where we can significantly improve patient care. We have yet to see how far we can manage patients with coronary artery disease and just how far angioplasty will safely and effectively go. Will coronary artery bypass surgery still be performed in 5 or 10 years? Percutaneous treatment of valve disease has become the new exciting area. But prevention and patient education are critical, along with treating those with infarction as expeditiously as possible.” As for his own future, Professor Gershlick is unequivocal. He will continue to do the work he enjoys so much and adds, “I am so shocked that they pay me to do what I do. It is a great, great job.”

References

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Michael O’Sullivan, PhD, FRCP, consultant cardiologist at Papworth Hospital, Papworth Everard, Cambridgeshire, England, and clinical director of the Cardiology Department, Addenbrooke’s Hospital, Cambridge, England, talks to Mark Nicholls.

“We Have Been Able to Undertake Some Interesting Research Into Coronary Physiology, Remote Ischaemic Preconditioning, and Coronary Virtual Histology”

Michael O’Sullivan, PhD, FRCP, consultant cardiologist at Papworth Hospital, Papworth Everard, Cambridgeshire, England, and clinical director of the Cardiology Department, Addenbrooke’s Hospital, Cambridge, England, was awarded the British Cardiac Society Young Research Worker’s Prize in 2002. However, because he is an interventional cardiologist at heart, he decided against a career in basic scientific research, but the experience provided him with the opportunity to learn a lot about research methodology and to recognise the importance of collaboration to achieve output within the area of translational research.

Born in Belfast, Northern Ireland, in 1968, Dr O’Sullivan moved to England to study medicine at Cambridge University and graduated with distinctions in 1992. After house officer jobs, including 1 in cardiology at Addenbrooke’s Hospital (Cambridge University Hospitals NHS Foundation Trust), he took up a senior house officer position at Royal Brompton National Heart and Lung Hospital, London, England, before moving to Oxford, England, to complete senior house officer training at the John Radcliffe Hospital. In 1996 he took up a position on the Cambridge registrar training scheme, rotating between Addenbrooke’s and Papworth Hospitals.

“I Gain Particular Satisfaction From Managing Cardiac Problems in Those With Complex Noncardiac Disease”

Like many interventional cardiologists Dr O’Sullivan, enjoys the technological advances the field offers. Indeed, as a medical student this prospect was a factor that first attracted him to cardiology. He says, “I found that the diversity of cardiac disease, the interplay between heart disease and other organ systems, and the variety of modalities for investigation and treatment fuelled my enthusiasm. I knew that the rate of technological progress within cardiology would mean that working within this specialty would keep me interested throughout my career.” More recently, he has helped drive these advances forward by trialling techniques for percutaneous valvular intervention.

Dr O’Sullivan’s main mentor has been Professor Peter Weissberg, MD, FRCP, who is now medical director of the British Heart Foundation. He says, “Peter has a wonderful ability to break a complex and daunting problem, be that clinical, research, or managerial, into simple steps, each of which can be addressed. He has been highly successful in his career but remains humble and approachable.”

After completing his PhD and further training in interventional cardiology at Papworth Hospital, Dr O’Sullivan completed an enjoyable and rewarding 1-year fellowship in interventional cardiology at the University of British Columbia between 2003 and 2004 in Vancouver, Canada, fine-tuning his skills, gaining exposure to the array of interventional techniques, and being involved on a day-to-day basis in interventional research, as well as developing a passion for skiing.

On his return to Cambridge in 2005, Dr O’Sullivan was appointed to a consultant post that divides his time between Addenbrooke’s Hospital (Cambridge University Hospitals NHS Foundation Trust) and Papworth Hospital. In this role he contributes to the general cardiology service at Addenbrooke’s Hospital and is involved with the busy interventional service at Papworth Hospital, which is the United Kingdom’s largest specialist cardiothoracic hospital. He became clinical director of the Cardiology Department of Addenbrooke’s Hospital in 2006. He says, “This position allows me to indulge my interests in both interventional cardiology and cardiac disease as encountered in noncardiac conditions. Working across 2 clinical services presents challenges, and I am drawn in opposite directions at times. I find it essential to clearly delineate my duties on both sites.”

Dr O’Sullivan believes it is important to continue to partake in the general cardiology rota, rather than focusing all his energy on interventional cardiology. He explains, “I think it is essential that we treat the patient as a whole, not..."
solely as a diseased artery. I gain particular satisfaction from managing cardiac problems in individuals with complex noncardiac disease, and my work at Addenbrooke’s gives me the opportunity to become involved in these challenging cases. Increasingly, I find myself involved with the cardiac management of patients requiring noncardiac transplantation, which is a challenging area requiring extensive multidisciplinary work.” There is an active and renowned kidney, liver, and pancreas transplantation programme at Cambridge University Hospitals NHS Foundation Trust, and Papworth Hospital has a reputation for innovation in transplantation. It carried out the first successful heart transplantation in the United Kingdom in 1979, followed by Europe’s first successful heart and lung transplantations in 1984, and the world’s first heart, lung, and liver transplantations in 1986.

“A Great Opportunity to Blur the Distinction Between Academic Physicians and ‘Jobbing’ National Health Service Consultants Such as Myself”
Cambridge has been chosen as 1 of 5 Academic Health Science Partnerships in the United Kingdom. The partnerships have been selected based on their ability to demonstrate excellence in clinical care, research, and clinical teaching. Dr O’Sullivan has a core role in shaping cardiac services within this partnership, which includes Cambridge University, Cambridge University Hospitals NHS Foundation Trust, and Papworth Hospital NHS Foundation Trust.

Dr O’Sullivan explains, “It is hoped that such centres will work at the forefront of biomedical research, greatly improving translational research and speeding the transition from basic research output to changes in clinical practice. I see this as a great opportunity to blur the distinction between academic physicians and ‘jobbing’ National Health Service consultants such as myself. I strongly feel that collaboration between scientists and clinicians with training in research is the key to progress in medical research. Scientists often generate clinical hypotheses but may have difficulty testing them, while clinicians may not be strong at generating the hypotheses or writing successful grant applications but are in a position to test hypotheses in the clinical setting.”

In research terms, Dr O’Sullivan believes that his best contribution is made as a clinician working alongside academic cardiologists. He maintains an active interest in clinical and translational research, and he finds that the best way to achieve this goal is through collaboration with the academic cardiology unit. Over the past 3 years, his main research efforts have been through collaboration with Martin Bennett, PhD, FRCP, FMedSci, British Heart Foundation professor of cardiovascular sciences, and David Dutka, MD, FRCP, of the Division of Cardiovascular Medicine, University of Cambridge. Professor Bennett and Dr Dutka have research backgrounds in vascular biology, coronary physiology, and cardiac imaging, and have active and successful research programmes, while Dr O’Sullivan facilitates the catheterisation laboratory-based side of their research.

Dr O’Sullivan says, “With the support of other interventional colleagues at Papworth, we have been able to undertake some interesting research into coronary physiology, remote ischaemic preconditioning, and coronary virtual histology.1,2 I feel that contributing to such collaborations that span from bench-based basic science to in-human studies is where busy National Health Service clinicians have most to offer. Few National Health Service clinicians are able to establish, obtain funding for, and run such programmes alone given their other duties.”

Another area of interest for Dr O’Sullivan is in trials of new interventional devices, particularly in the emerging field of percutaneous mitral valve repair. He explains, “This technology has lagged behind percutaneous therapies for aortic valve disease, but there are some promising technologies coming through. It is interesting to be involved at this early stage but I think we have several years to go before such therapies become commonplace.” Dr O’Sullivan is
the UK Chief Investigator for the EVOLUTION II trial, with Papworth Hospital as the lead UK centre, looking at a new minimally invasive procedure for the treatment of mitral regurgitation. On June 25, 2009, he and his colleague, Peter Schofield, MD, FRCP, performed the first such procedure at Papworth Hospital. The patient responded well and was able to return home the next day. Although he acknowledges that it could be several years before such procedures are in widespread use, Dr O’Sullivan is enjoying the opportunity to develop the technique.

An Opportunity to Learn About Research Methodology and to Recognise the Importance of Collaboration

Early in his career, Dr O’Sullivan carried out award-winning research. During his registrar training between 1999 and 2002, a Wellcome Trust research fellowship allowed him to complete a PhD in vascular biology looking at mechanisms underlying in-stent restenosis at the Cambridge University Department of Cardiovascular Medicine under the supervision of Professor Bennett.3,4 He says, “I studied cell-cycle regulation in coronary in-stent stenosis—a very topical subject at that time, when multiple potential therapies for this condition were being tested but our understanding of the basic mechanisms of restenosis was limited.” The research involved obtaining human tissue by coronary atherectomy and study of cell-cycle regulation in cells cultured from this tissue, and through this it was possible to demonstrate differences in cell-cycle control among restenotic, atherosclerotic, and normal vascular smooth muscle cells. In 2002, Dr O’Sullivan was awarded the British Cardiac Society Young Research Worker’s Prize for this work.

“Treat the Patient as a Whole, Not Merely as an Artery or Accessory Pathway”

Dr O’Sullivan advises individuals planning a career in cardiology to identify a field that inspires their interest early in their career, and then make sure that every career decision points them in that direction. “At the same time,” he adds, “you shouldn’t be too rigid in your thinking. It may be that you are diverted off that pathway into something more suitable, interesting, or fulfilling. At all times remember that cardiology is about treating patients. Treat the patient as a whole, not merely as an artery or accessory pathway. It may be old fashioned, but you can often learn more about how to deal with a patient by listening to him or her than by ordering a multitude of complex tests.”

Dr O’Sullivan believes that the main developments in the treatment of coronary artery disease will be in the area of identifying vulnerable plaques. He says, “We still do not have a reliable noninvasive means of identifying plaques that are likely to rupture. Virtual histology and coronary optical coherence tomography provide potential invasive means of identifying vulnerable plaques, but much exciting work is yet to be done. When we can reliably identify such plaques, the next big question is how best to stabilise them. In particular, will a targeted invasive approach add anything over systemically administered drug therapy?”

References


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