

Clinical Cardiology

Dublin Cardiovascular Research Institute is where the heart is



Home is where the heart is for the newly appointed Director of Cardiology Services at the Mater Private Dublin, **Prof Robert Byrne**, who has recently returned to his native Ireland from Germany where he was a Consultant Cardiologist and Deputy Director of Cardiology at the German Heart Centre. **Peter Doyle** reports



When asked why he wanted to come back to Ireland, **Prof Robert Byrne** did not hesitate with his reply. "I think it was the opportunity to set up, alongside your day-to-day clinical work, a research institute," he told *Irish Medical Times (IMT)*.

The 'research institute' that the new Director of Cardiology at the Mater Private Hospital in Dublin was talking about was the Dublin Cardiovascular Research Institute (DCRI) – a joint initiative between the private hospital group and the Royal College of Surgeons in Ireland (RCSI).

"This seemed like a unique opportunity," added Prof Byrne, who was also appointed Chair of Cardiovascular Research at the RCSI on his return to Ireland.

"The Mater Private has committed financing to get a research institute (along with the RCSI) up and running. We will be interested in all areas of cardiovascular disease, ranging from coronary artery disease and acute coronary syndrome to valvular heart disease, electrophysiology and atrial fibrillation."

Outcomes-based clinical research

Speaking from his consulting rooms, Prof Byrne said that "outcomes-based clinical research" was going to be another priority for the DCRI which opened its doors in January.

"A lot of hospitals in Ireland do very high volumes. They treat lots of patients; they get lots of referrals and lots of transfers, and do lots of procedures, and lots of reviews of patients," explained Prof Byrne, who trained in medicine at the nearby Mater Misericordiae University Hospital.

It, therefore, made sense, he said, to collect the data gathered from the hospital's everyday activities to "try to learn from the outcomes of these patients and maybe see if they will fit into a clinical study".

"We have hired a project manager who is going to run the research institute and we are in the process of recruiting some researchers, study nurses and a statistician," he also told *IMT*.

Investigator-initiated assessments

He added that there was now a strong need for "investigator-initiated" assessments of drug therapies which, he explained, were not usually sponsored by the pharmaceutical industry.

"They run independently of industry, and can examine small differences in the therapies that we give to our patients," Prof Byrne said.

He explained how one such trial in Germany that he was involved with led to a surprise result regarding drug treatment for patients who presented with heart attack.

"Nowadays, patients with cardiovascular disease can often be on a large number of medications, and all of them have proven some benefit in clinical trials, but many of them don't have head-to-head studies.

"So there might be two treatments approved for a particular condition but we don't have head-to-head studies to say, well this one might be a little bit better than that one, in terms of outcomes."

The industry, he said, did not have any interest in carrying

out head-to-head studies because the medications were already approved.

However, for physicians and or patients, small differences in medications might be important, added Prof Byrne.

"For example, for patients who have acute coronary syndrome, or are presenting with heart attack, they usually undergo catheterisation and have a stent implementation if a critical lesion is found.

"These patients are prescribed antiplatelet therapy, or blood thinning therapy, which normally consists of aspirin, and a second drug, which could be ticagrelor or prasugrel, and both of those drugs are approved for use.

"But we didn't have any head-to-head comparisons to say if one might be better than the other."

After securing funding for a trial involving more than 4,000 participants, Prof Byrne said the German Heart Centre in Munich discovered that it was the less-favoured therapy prasugrel which produced the better outcomes for patients. ('Ticagrelor or Prasugrel in Patients with Acute Coronary Syndromes', Schüpke *et al*, *New England Journal of Medicine*, October 2019, doi: 10.1056/NEJMoa1908973).

"Among patients who presented with acute coronary syndromes with or without ST-segment elevation, the incidence of death, myocardial infarction, or stroke was significantly lower among those who received prasugrel than among those who received ticagrelor, and the incidence of major bleeding was not significantly different between the two groups," the researchers concluded.

Significant expansion

Prof Byrne said he believed there were many similar questions that deserved “the focus of the community” and investigation via clinical trials — but he conceded that trials were expensive and required funding.

“That’s why we are delighted we have some start-up funding for the research institute here and we have identified a couple of key areas that we would like to look at,” he said.

Announcing significant expansion plans, Prof Byrne revealed that the number of cardiac consultants working at the Mater Private could double “in the coming years”.

“I think the reason that research can run quite well at the Mater Private is at the moment there is an expert team of 20 consultants who deliver consultant-led, high quality clinical care,” he said. “We want to utilise this activity and collect the data to feed into studies and investigations.”

“The plan is to expand the group and ultimately we would envisage an almost doubling of consultant numbers in the coming years, if the department develops as planned.”

Latest therapies

Prof Byrne also told *IMT* that his plans included offering Mater Private patients access to the latest therapies which he observed during the 12 years he spent in Germany.

One development, in his opinion, which was making a major difference to clinical outcomes in recent years was for the treatment of patients who presented with breathlessness and heart failure due to mitral valve insufficiency. These patients can now be treated with a new catheter system designed for those who are unable to undergo conventional mitral valve repair.

“Through a vein in the groin we can insert a catheter system up to the heart, go from the right atrium to the left atrium, and then move down to

the mitral valve, clip it together, with a procedure called a micro clip,” Prof Byrne explained. “This has become quite a popular treatment in Germany and is also now becoming available in Ireland.”

“The one thing that you notice from the patients is that when you see them back for follow-up a few weeks later, many of them are very, very thankful,” he added.

“They have noticed a significant improvement in their quality of life.”

Another area that has developed in recent times, added Prof Byrne, has been transcatheter aortic valve implantation — or the so-called TAVI procedure.

In Germany, he said, they started out treating patients who were either too old or too sick to undergo an operation before moving on to patients “who were high risk but potentially candidates for either an open operation or the TAVI”.

“More recently, we have information on lower risk patients and they seem to do just as well, if not better, with this minimally invasive trans-catheter aortic valve replacement,” added Prof Byrne.

“This is a therapy that’s now going to become the standard of care across the spectrum of patients who have aortic valve problems.”

“So, when you talk about stand out areas in the last couple of years I would say valvular heart disease, mitral valve interventions with micro clip procedure and aortic valve interventions with TAVI,” he added.

“These are areas that are going to make more and more difference to our patients in terms of quality of life and also in terms of survival and we are pleased to offer these programmes at Mater Private.”

Noting that interventions “at the right time” for patients with advanced valvular heart disease have been proven to improve patient outcomes and lower mortality — both in terms of aortic and mitral valve disease — he said that patients with critical coronary artery disease also benefited

from revascularisation “be that PCI or stenting, or bypass surgery”.

“That is something that we also offer to our patients here,” he said.

“It makes a particular difference for patients who present with heart attack who need to be seen quickly but also in terms of patients with stable disease but blockages, for example, in the left main coronary artery,” he continued.

“There are a proportion of patients with heart failure and weakened heart muscles and we know that a subset of those profit from having a back-up defibrillator implanted.

“It may do nothing, it won’t affect their quality of life, but if they have a serious heart rhythm disturbance like ventricular tachycardia or ventricular fibrillation, it kicks into action and can save lives and I think that has become a standard therapy in cardiology and has made a significant impact on patient mortality.”

Risk factors

Acknowledging that heart disease was one of the biggest killers in Ireland, with around 10,000 deaths annually, Prof Byrne said cardiologists were mostly dealing with the advanced consequences of the illness. But he also said that staff at the Mater Private’s cardiology clinics were “very much” focused on prevention by treating the risk factors.

“The risk factors are well-known — high blood pressure, having people get their blood pressure checked when they get to middle-age at least once a year, having their cholesterol checked, being screened for diabetes, educating them on the importance of cigarette cessation if they smoke, moderate alcohol intake, and regular exercise at least three times a week for at least 30 minutes,” he added.

“Prevention is better than cure, as the old adage goes, and it applies very clearly to cardiovascular disease.” *IMT*



Prof Robert Byrne, Consultant Cardiologist

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