Progress and Problems for Turkish Interventional Cardiologists
Tugrul Okay, MD, director of the Department of Cardiology, International Hospital, Istanbul, Turkey, talks about some of the challenges facing interventional cardiologists in his country and how financial pressures may influence decision making.
Page f199

Circulation
EUROPEAN PERSPECTIVES IN CARDIOLOGY

Centres of Excellence in Cardiology:
The Onassis Center

In the second of an occasional series looking at centres of excellence around Europe, Dennis Cokkinos, MD, FESC, Peter Alivizatos, MD, and Ioannis Papadimitriou, MD, talk to Barry Shurlock, MA, PhD, about the Onassis Cardiac Surgery Center, Athens, Greece, a hospital where private-public cooperation has dramatically raised the confidence of patients and is making significant contributions to original research.

Life for medical staff and managers is always likely to be less than straightforward in Greek centres of excellence. The Onassis Cardiac Surgery Center (OCSC) in Athens is one example, operating as if it were in a country with a stronger industrial economy and a more advanced hi-tech sector than is the case. The OCSC receives much of its technical and intellectual input from afar but responds to local needs. In fact, the reality for the OCSC is even more complex, for it is a nonprofit, privately managed hospital that was founded in 1993 by the Alexander S. Onassis Public Benefit Foundation (named by the shipowner Aristotle Onassis after his son, who died in a plane crash).

The Foundation donated the centre, not long after its founding, to the Greek state. The generosity of the Foundation continues, explains the chairman of the board of directors, Dr Ioannis Papadimitriou (who is professor and honorary director of surgical services, Errikos Dunant Hospital, Athens), because it has just signed a contract to buy a Siemens 128-multislice CT scanner, one of only a handful in Europe, at a cost of €1.5 million. Two years ago the state cleared OCSC deficits of €60 million, and in the current year, projected deficits of €26 million have, “with careful management,” been kept to within €12 million.

Despite these financial problems, 90% of patients attending the centre are on social security and “no one is turned away,” according to its chief of staff and director of the First Cardiology Department, Dr Dennis Cokkinos, emeritus professor of cardiology at the University of Athens. The board of directors, which has 6 members appointed by the Greek minister of health and 1 by the Foundation, makes all medical appointments, with the advice of external assessorers. Medical appointees must speak the local language, although Dr Papadimitriou comments, “We would be very happy to have foreign doctors as well, provided they know Greek.”

The OCSC was founded to provide facilities for Greek cardiac patients who formerly had to travel abroad for cardiac surgery and other critical procedures, such as percutaneous transluminal coronary angioplasty. Describing the situation before 1993, Dr Peter Alivizatos, chief of the First Cardiothoracic Surgery Department and director of transplantation services, says, “There was the sight of convoys of Greek patients going to London with their interpreters, travelling round one private hospital after another, seeing Mr So-and-so in Upper Wimpole Street or Dr What’s-his-name in Harley Street! They were going abroad to seek a surgical cure involving relatively simple procedures, like an aortic valve replacement or a coronary artery bypass.”

Commenting on the early years of the hospital, Dr Cokkinos says, “It was a success of this centre that very soon after it started—within 1 would say the first 2 years—the flow of patients abroad actually stopped. It was not only our centre that provided the facilities, because the Greek public quickly realised that if one hospital can do it, other hospitals can have good results as well. So now it is very rare that a patient goes abroad for cardiac surgery.”
The OCSC has a total of 127 beds and can accommodate 37 patients in surgical wards, 16 in surgical intensive care, plus 39 in medical wards, with 12 in coronary care units. It also has facilities for paediatric surgery and cardiology, with wards for 15 young patients (including 3 incubators) and 8 in intensive care. It has 3 catheter laboratory suites. Since it opened, the OCSC has admitted more than 60,000 cardiology patients and more than 21,000 cardiac surgery patients. In 2005, it performed 1,681 open-heart operations, 3,275 coronary angiograms, 1,529 percutaneous transluminal coronary angioplasties with stents, 460 diagnostic electrophysiology procedures, 310 catheter ablations, 524 pacemaker procedures, 132 internal coronary defibrillator placements, and more.

It operates a 24-hours-a-day, 7-days-a-week primary angioplasty service, with referrals from throughout the country. It is the only centre in Greece that inserts mechanical circulatory support devices (left-ventricular and biventricular assist devices) and performs cardiac transplantations, accounting for 6 and 9 patients in 2005, respectively.

“There is a strong heart failure programme, but no comprehensive rehabilitation is available, pending an anticipated extension to the hospital,” explains Dr Cokkinos. Length of stay averages about 4 to 5 days for adult cardiology patients (rather less for children, about 2 to 3 days) and about 5 to 7 days for open-heart surgery patients without complications. In-hospital mortality is about 0.5% for cardiology patients and 2.78% for open-heart surgery. Rates of infection in the surgical ICUs are about 4%. In 2003, the Centre became the first hospital in Greece, and one of only a few in Europe, to be awarded a quality management accreditation (ISO 9001-2000) by the Swiss Association for Quality and Management Systems. Medical staff are free to take private patients “after hours,” but fees are fixed by the hospital, which takes a sizeable proportion of the income.

Most standard cardiac surgery procedures are carried out at the OCSC, including complex arrhythmia operations such as the Cox procedure, but the hospital lacks the radiological facilities required to insert stents into the thoracic aorta for conditions such as dissecting aneurysm.

A small number of heart transplants have been performed each year since 1995, with a 10-year Kaplan-Meier survival of almost 70% in patients to the end of 2005 (Figure 1). “This compares favourably with the average of 50% recorded by the International Society of Heart and Lung Transplantation,” says Dr Alivizatos. “Unfortunately, 2 other programmes at other centres in Greece had disastrous results and have been discontinued.”

The OCSC programme was started by Dr Alivizatos, who undertook basic medical training in Boston, Mass, followed by specialist training in cardiac surgery in Richmond, Va, with Richard Lower, MD. He then moved to London, working at the Hospital for Sick Children, Great Ormond Street, and spent 2 years with Sir Magdi Yacoub, FRCS, at the Harefield Hospital. Dr Alivizatos is due to retire in 2008, but still harvests all donor hearts, is present at all operations and prepares the transplant for 2 colleagues, Petros Sfirakis, MD, and Loukas Tsourelis, MD, who received part of their training in the United Kingdom and Germany, respectively. A team of some 20 physicians performs a thorough preoperative assessment of the patient and is involved in indefinite care thereafter. The programme is organised by transplant coordinators who are specially trained nurses operating a 24/7 on-call rota. Only 1 transplant patient at the OCSC has died on the operating table. This mortality, caused by uncontrollable bleeding, was early in the programme.

Commenting on the programme, Dr Alivizatos says, “It is smaller than some other programmes, but it is better than some large ones because it has superior postoperative care. Our transplant coordinators never release the care of the patient to local physicians. With every tiny problem, from a toothache to haemorrhoids, the patient is told to call the transplant coordinator. If there are problems, the patient is brought back to the Onassis Centre. We will send an aeroplane if need be. And strict international criteria are applied in the selection of patients.” He continues, “The major problems faced in Greece by the programme were the use of very high doses of inotropes in many donors and a general shortage of donor hearts in Greece.” This shortage is due largely to a reluctance on the part of intensive care unit medical staff to become involved in encouraging organ donation. The OCSC would like to start a heart-lung transplant programme but lacks the necessary pulmonary medicine department.

The Centre collaborates “amicably and closely” with the First and the Second Departments of Cardiology of the University of Athens, says Dr Cokkinos, and participates in the education of medical students doing rotations in their fifth year. It also has an active postgraduate programme of fellows and residents in cardiology, cardiac surgery, and surgical intensive care, almost all within the training programmes of the Greek National Health Service, but also with a few doctors of Greek origin from other countries, who come for 1 to 3 months. The Centre has close links with the...
Emory School of Medicine, Atlanta, Ga. After 6 years of basic medical education, trainees spend 2 years in internal medicine and 4 years in cardiology, in accord with the “common trunk” of the European Union model for specialist medical education.

Since the OCSC opened, members of its staff, often in collaboration with other centres in Greece or abroad, have published nearly 500 papers in peer-reviewed journals, including nearly 400 from the cardiology departments alone, with the remainder from the surgical and intensive care departments. Major research interests include the role of thyroid hormones on heart function and protection, postmyocardial infarction remodelling, arrhythmias, and inspiratory muscle training. The use of ascorbic acid in the prevention of contrast-mediated nephropathy in renal patients undergoing angiography was a treatment that originated at the OCSC. The Centre collaborates actively with the Pharmacology Department of the University of Athens and with the Experimental Research Unit of the ELPEN Pharmaceutical Company Inc, Athens, a private research facility.

There can be little doubt that the OCSC is a wonderful asset for Greece, but it is envied by some Greek doctors, who see it as the “spoilt child” of the medical community on account of its special situation. Appropriately enough in a land of temples, the building is a gleaming white subpyramid (see Figure 2), a shape that its British architects chose to cope with the searing heat of Greece. Inside, there is an enormous atrium that is more in keeping with a grand hotel than a hospital. Whatever else one may say, there is no doubt that the OCSC does its work in style, which is to be expected from an institution that ultimately owes its existence to the late Aristotle Onassis, the legendary owner of tankers and bulk carriers that made his fortune. Ultimately, the finances of the Foundation and hence of the OCSC are still underwritten by the proverbial Greek genius for plying the seas.

Provisioning services for cardiology and cardiac surgery in a relatively small country such as Greece, with its population of about 10.6 million, is never going to be easy. Not only are the economic challenges formidable, but the nature of its urban centres and the infrastructure of the country can militate against the proper provision of modern medicine. The population is spread across a terrain divided by great mountain ranges, in the midst of which only its capital, Athens, and its surrounding suburbs, with a population of about 3 million, can be termed a metropolitan area. Although Greece

Viewpoint: Progress and Problems for Turkish Interventional Cardiologists

Tugrul Okay, MD, director of the Department of Cardiology, International Hospital, Istanbul, Turkey, talks to Judy Ozkan, BA, about some of the challenges facing interventional cardiologists in his country.

Almost all current procedures in modern cardiology can be performed successfully in medical centres across Turkey. This includes alcohol septal ablation for hypertrophic cardiomyopathy, which has been carried out since 1997. Much progress has been made in the past 20 years, and the spread of interventional cardiology in Turkey in the second half of the 1980s was helped by the use of live demonstrations given by overseas invasive cardiologists in the Haseki Cardiology Institute in Istanbul, Turkey. Mehmet Ozdemir, MD, professor at the Kosuyolu Cardiology and Research Hospital, Istanbul, established two new cardiac catheterisation rooms there in 1986.
“I was the first fellow of this hospital,” says Dr Okay, “and the young, dynamic, invasive cardiologists who were trained in Kosuyolu between 1986 and 1994 went on to open new centres in every corner of Turkey. They are now all operating successfully.” The first live demonstrations solely by Turkish doctors were performed in the Kosuyolu Hospital, Turkey, on its fifth anniversary in 1991. In the same year, the first intracoronary stent procedure in Turkey was performed in that hospital.

According to the Turkish Society of Cardiology, the number of percutaneous coronary interventions (PCIs) almost doubled each year in the second half of the 1990s (see Figure 1). At present, there are 30,000 percutaneous coronary interventions being performed in 85 centres and almost 110 catheterisation laboratories. Turkey has a population of about 70 million people, and among the 22 million who are over age 40, the intervention rate is about 733 per million.

“In general, there are no waiting lists for coronary angiography or PCI in Turkey,” says Dr Okay, “but there are problems. Difficulties arise from the fact that most health care in Turkey is government funded.” He explains that private and public sector hospitals have contracts with the Ministry of Health to meet the costs of cardiological interventions. This means that 80% to 90% of the patients who apply for treatment to these hospitals are, in fact, government funded. The main providers, who are the Ministry of Health with the Ministry of Finance, determine the cost of interventions.

Dr Okay continues, “PCI is an expensive intervention, and as the numbers increased, so did the state policy on restricting expenditure. These restrictions are continuing, not only in the reimbursement of procedures but in the cost of drugs as well.” Giving an example, Dr Okay points out that whereas 10 years ago, the state paid $1700 US for a bare metal stent (BMS), today it will only pay $310. This means that those undertaking procedures have to cut costs, and cheaper, poorer-quality stents have been gradually introduced.

With the fall in reimbursement and the introduction of drug-eluting stents (DES), the situation has become more complicated, because the Ministry of Health rules do not permit the use of a DES to state-funded patients. In this situation, a state-funded patient will need to pay for the DES him- or herself or make a choice between a free, cheap stent or paying the difference for a more expensive bare metal stent.

“Turkish cardiologists are therefore put in a position where they have to explain to the patient in detail the financial implications of the differences between a DES and a BMS,” says Dr Okay. In general, a DES is more expensive in Turkey than in other European countries. For example, in Turkey, a Cypher stent costs $4100 and a Taxus stent costs $2400. “We need to consider that the average income in Turkey is around $5000 per annum. It is obvious that doctors need to make a careful consideration of people’s circumstances when they suggest which stent to use on a patient,” he says. “At the moment, only private insurance companies will pay for a DES, but only 5% of our patients are paid for by private insurance companies.”

State reimbursement for coronary angiography or PCI has gradually decreased each year, to the point where the situation has become unsustainable. Pricing now allows $390 for a coronary angiography, including the physician’s fee, and $715 for PCI. “The restrictions applied by the state in drug usage are similar to those for intervention procedures,” says Dr Okay. “Clopidogrel is only paid for by the state for 6 months after a DES is used, and only for 3 months after a BMS. This restriction makes it difficult to explain to the patient the necessity of using clopidogrel for a year.” Dr Okay explains that the prescription of statins is equally problematic. “The state only makes these available to coronary artery patients if the low-density lipoprotein levels are above 130 mg/dL.”

Despite the low funding, hospitals need to treat patients in large numbers. This puts undue pressure on doctors when they have to consider the indications for the various procedures and make appropriate selections. The Ministry of Health policy does not presently give clear guidelines to help doctors reach decisions, nor does it offer enough support to cardiologists, who are left to make the decision about whether to use a DES and who also have to bear in mind the financial considerations. Our recently qualified cardiologists have to face difficult demands involving financial and decision-making pressures after only 5 years of postgraduate education.

Judy Oskan is a freelance medical writer.

Figure 1. The number of PCIs increased rapidly in the 1990s.

Figure 2. Dr Okay and team at the International Hospital, Istanbul.