

## President's Page

# Interventional Cardiology for Structural Heart Disease

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**T**he range of cardiovascular diseases and the number of patients who are being treated by interventional cardiology is growing exponentially year by year. A number of reasons have contributed to this: the patients' demand for less invasive procedures; the development of new devices and technologies; the publication of favourable results in randomised clinical trials; and the enthusiasm of the cardiology community for these new "revolutionary" treatment options.

Since the early 90s, patients with some forms of congenital heart disease have been offered transcatheter treatment, which is invaluable in allowing them to avoid open heart surgery, usually multiple. Today, many congenital defects can be treated percutaneously: atrial and ventricular septal defects; patent *ductus arteriosus*; aortic coarctation; aortic, pulmonary and mitral valve stenosis; pulmonary artery stenosis; and conduit degeneration in patients who have been operated for tetralogy of Fallot are some examples. In addition, since the 90s, patients suffering from some forms of degenerative valve disease (e.g. mitral stenosis) have also been treated percutaneously. In 2002, Dr Alain Cribier did the first-in-man transcatheter aortic valve implantation (TAVI) in a patient with severe aortic stenosis. Ten years later, more than 40,000 patients have been treated worldwide. The indication for TAVI is gradually being shifted, from high-risk or inoperable, old patients to medium-risk, younger patients. A transcatheter pulmonary valve is also available and, recently, the first transcatheter mitral valve and tricuspid valve implantation were announced. In addition, a novel treatment for the prevention of stroke in patients with atrial fibrillation has been developed: percutaneous left atrial append-

age closure with a device has been already offered to more than 6000 patients worldwide, with favourable initial results. Finally, a large number of new devices and treatments are being developed for other diseases such as heart failure and arterial hypertension.

Many questions arise from this "explosion" of new technologies. Is all this enthusiasm justified and supported by robust scientific evidence? Which is the best way to implement these new treatment options? What is the role of "traditional" surgical treatment? How can we decide which patient should be treated percutaneously and which surgically? What level of training and experience should an interventional cardiologist (or a centre) have in order to perform structural and/or congenital heart disease interventions?

With regard to the scientific evidence, it should be noted that, currently, the number of randomised clinical trials and the duration of follow up is quite limited. Thus, great caution should be exercised in patient selection and planning for these complex procedures. In addition, careful data collection and, ideally, inclusion in a patient registry would increase surveillance and, therefore, patient safety.

Notably, for the majority of structural and congenital heart diseases, surgery is still considered the "gold standard". It is now globally accepted that decision making for patients with cardiovascular disease should be done in the context of a "Heart Team", with close collaboration between cardiologists, cardiothoracic surgeons, anaesthesiologists, imaging specialists and, occasionally, other specialists. Some patients will benefit more from transcatheter interventions whereas others will do better with surgery. Based on specific criteria, the role of the Heart Team is to identify (and treat) those patients. Trans-

catheter interventions for structural and congenital heart disease are relatively complex and a learning curve effect is usually noted at the beginning.

At the moment, formal training is offered in a few centres in Europe and North America. Formal accreditation with confirmed theoretical knowledge and experience in clinical practice should be a prerequisite for every physician (or centre) that wants to prac-

tice interventional cardiology for structural and/or congenital heart disease.

In summary, novel technologies and “revolutionary” treatments in cardiology are neither good nor bad. It is the cautious use of these modern “tools” by the cardiological community that will determine whether, which, and how patients will benefit from it.