

## A new medical residence program in cardiovascular surgery with direct access

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**T**he medical residence program was established over the years as the best alternative to prepare competent specialists.

Its hands-on training strategy to acquire abilities with little theoretical tuition has proved to be efficient to train good professionals.

Initially it was accessed directly with graduation after three years. Subsequently it was accessed differently, with one year of general surgery and three of cardiovascular surgery and more recently, following changes introduced by CNRM-MEC (resolution CNRM-03/2002 and resolution - 02/2006), it was extended with the obligatory inclusion of two years of general surgery followed by another four years of cardiovascular surgery. These changes occurred without any efficient evaluation of the final results and without scientifically proved reasons to validate them. It is clear that the intention must have been to increase the consistency both in knowledge and technical abilities of those who studied under the new format. Medical societies did not request these changes, but it is the members who are the instructors of such programs in authorized centers and are responsible for the organization and evaluation.

Medical science, with some specialties in particular, is suffering from the great impact caused by the development of new diagnostic and therapeutic technology, forcing professionals to incorporate their knowledge and abilities in its daily use. This is not a whim as much technology has been proven by clinical research and is approved as efficacious.

There is, however, a necessity of radical changes in the preparation of residents of cardiovascular surgery requiring profound modifications to the program. It is not only necessary to change the content of the program but to focus on the acquisition of new abilities improving the competence of doctors to better serve the Brazilian population.

There is nowadays a rivalry among similar specialties in respect to the dominium and use of these new technologies, making the market confused and

competitive thereby harming less well prepared professionals. The Brazilian Medical Association, appropriately, is regulating these medical practices through the level of competence emphasizing the preparation of professionals from each area. To illustrate this point, in the treatment of diseases of the aorta and its branches, there have been for some time now endovascular interventions without any precise limitations performed by: RADIOLOGY, NEURORADIOLOGY, NEUROSURGERY, PERIPHERAL VASCULAR SURGERY, HEMODYNAMICS AND CARDIOVASCULAR SURGERY.

Additionally, electrophysiologists, cardiologists and cardiovascular surgeons treat arrhythmias with the implantation of devices such as multiple site pacemakers and cardioversion-defibrillators.

In the most recent international congresses, demonstrations of correction of aortic valve lesions using percutaneous and ventricular transapical methods without the necessity of cardiopulmonary bypasses (Enable, Entrata) and the treatment of mitral valve insufficiency (Bace, Evalve-clip, Viacor PTMA and Mitral Life) by endovascular techniques were performed by specialists belonging to different areas such as from hemodynamics, radiology, vascular and cardiovascular surgery. This new technology that is being developed will certainly occupy an important space in the future therapy of heart valve diseases, which today represent almost 30% of surgeries. Gene and cellular therapies are other new techniques disputed by different specialties being utilized more and more in sensitive areas of conventional therapeutic, such as for ischemic heart disease and dilated cardiomyopathies.

Time and effort is required to attain and incorporate this new science in the preparation of future cardiovascular surgeons.

There is a great necessity to spend time in obtaining knowledge of both traditional and more modern imaging methods, as these do not only help in diagnosis but are also necessary instruments for less-invasive methods of treatment.

There is a necessity to dominate the use of radiology equipment and of the intensification of imaging to insert endovascular devices, such as for example, vena cava filters to retain thrombi with the necessity to perform pulmonary thromboendarterectomy surgery after to treat secondary pulmonary hypertension.

Peri-operative transesophageal echocardiography is important to assist in decisions during surgery to define post-revascularization ventricular function or the quality of valve remodeling. The surgeon must know how to interpret these images to more efficiently plan and perform the operation with a lower risk to the patient.

It is necessary to increase the time available to learn about strategic areas such as radiology (helical tomography, electromagnetic resonance, etc), the use of nuclear medicine to study ventricular function and myocardial viability and the diagnosis of injuries and operation planning with the help of the different types of echocardiography. It is not sufficient to just receive the report from the echocardiographer, we have to know how to interpret basic lesions such as, for example, mitral cuspid prolapse and its possible etiology, in order to plan the method of reconstruction prior to the procedure.

Minimally invasive surgeries with the help of thoracoscopy (with the use of robotics or not) demand specific training with a considerable amount of time spent to acquire these special abilities, such as for coronary artery surgeries and for the correction of persistent atrial fibrillation.

There are examples in every area of modern cardiovascular surgery and there is no possibility of spending time in attaining knowledge or abilities in areas that in themselves do not contribute to the preparation of new surgeons that the job market requires.

General surgery, which used to be well defined in relation to its structure to instruct new professionals, has also suffered over the last few years due to new developments in technology. Today, it is divided into basic general surgery, advanced general surgery, surgery of the digestive tract, oncological surgery, head and neck surgery, trauma surgery as well as passing certain topics that previously were part of general surgery to coloproctology and other similar areas. Modern general surgery has been dramatically modified with the utilization of endoscopy in minimally invasive surgical techniques. It is easy to see that it is not rational for the cardiovascular surgeon to study this excessively fragmented field anymore in an attempt to qualify and to follow a medical residence program

in cardiovascular surgery. The time spent in acquiring knowledge and abilities in general surgery must now be spent in learning new technology that is being incorporated in our specialty.

The recent example of neurology excluding the prerequisite of general surgery or clinical surgery is well illustrative of the advances which had to be incorporated by this specialty, motivating changes in direction in preparing future professionals. To demonstrate this we should mention stent implantation for stenotic lesions of carotid arteries and the insertion of devices in intracerebral arteries to treat aneurysms.

We recommend the incorporation of the contents of basic general surgery, which must be part of the preparation of all surgeons, in the current program that we are proposing, but for the reasons described herein, discard the necessity to study the different areas in which general surgery has been divided.

At this moment in the United States, medical societies (such as the AATS and STS) are discussing a drastic reduction in the years dedicated to studying general surgery and the Cardiovascular Surgery Society and other similar European Societies (such as EACTS and EACS) are proposing the elimination of prerequisites with an increase to four years in specific areas. All are using arguments such as the necessity of including new technology in the preparation of cardiovascular surgery residents. Schools to re-educate trainers have been created, that is, doctors that completed the traditional residence in cardiovascular surgery can acquire the knowledge and the abilities necessary to dominate new technology.

There is a great demand at this moment for competent professionals in the market and the formation of multiprofessional teams that, by working together, can treat, at a lower risk, diseases of patients undergoing hybrid procedures performed by team members from similar areas.

In the Brazilian Society of Cardiovascular Surgery (BSCVS), tests to be approved for the title of specialist have demonstrated by the percentage of doctors who pass that there is little difference between those who come from programs in which the prerequisite is required and in those who come from Teaching and Training Centers (CTT) of the BSCVS in which the prerequisite is not required.

On the other hand, the BSCVS has as its leaders of the past and present a significant number of pioneers spread out around Brazil who were founders of excellent services, who dominate the scientific setting and who never studied general surgery as a prerequisite, but started directly in cardiovascular training programs.

However, the focus of our attention in preparing

new professionals, as well as the opportunity of re-educating trainers, demands changes in the direction of these specialty programs, in order to competitively maintain standards in the demanding job market, retaining levels of excellence both in the service provided and in the safety of the patients.

The concept of a modern cardiovascular surgeon must obligatorily incorporate his/her preparation together with traditional methods of diagnosis and therapy, a set of interventionist abilities which do not require large incisions, cardiopulmonary bypass, cardiac arrest and opening of the heart, providing greater comfort with less injury, lower levels of pain, reduced hospital stays and a reduction in potential complications. All this associated with good results, faster recovery and a faster return to a productive working life.

The survival of a specialty is possible if the members assimilate the new technology and creatively contribute to its development, as protagonists and not as coadjuvant or excluded.

We must not forget the ruthless law of the evolution of the species: “the strongest do not necessarily survive, only those with the greatest ability to adapt to changes in the environment.”

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