OPINION ARTICLE

The Future of Cardiac Surgeons: Conversion of the Specialty

El futuro del cirujano cardiovascular: reconversión de la especialidad

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Acknowledgement of the disruptive potential of transcatheter technologies on the field of structural heart diseases has alerted surgeons on the need to adapt and train in these new technologies. (1) The experience of knowing the in-vivo cardiovascular anatomy, as well as the practice in direct approaches on the great vessels or by transapical access, together with the ability to solve all the complications possibly caused by endovascular procedures, would place the surgeon in an ideal situation to use minimally invasive methods based on transcatheter technologies.

Pragmatically, it would be easier to train surgeons in the endovascular techniques used by interventional cardiologists than vice versa. In this new role, cardiac surgeons would be in a unique and advantageous position to treat the wide range of structural diseases of the heart and great vessels without operative limitations or decisions biased by the chosen technique.

To this end, upcoming surgical training programs should include endovascular training to ensure competence and credentials in handling catheters with ultrasound, fluoroscopy or computed tomography imaging guidance, or future computer- or robotic-assisted interventions. (2, 3) These mixed programs have been developed for cardiovascular surgery in recent years. (4) Conversion of current traditional cardiac surgeons into interventional surgeons would require direct hands-on training experience and simulated anatomical scenarios, subsidized in part by the industry interested in promoting their new technologies.

This new scenario is similar to that faced by vascular surgeons who perform endovascular procedures today, but who are still able to practice traditional surgery, but with much less experience than in the past. In fact, long-term monitoring of aortic endografts has recently shown technical failures that, in certain cases, vindicates direct surgery as the best treatment option. (5) However, the emergence of endovascular treatment as first choice has led to a certain shortage of vascular surgeons able to operate an abdominal aortic aneurysm, resulting in health concerns to obtain these human resources who require a long training period. It is necessary for the future not to lose our cardiovascular surgeons, who will be the skilled surgical support to solve the complications that increasingly complex endovascular treatments may generate, and with little evidence of their long-term outcomes.

Experience in cardiac surgery is rich and mindful of the technological innovations that were immediately adopted without enough evidence and later ruled out for routine use, such as stentless valve prostheses or aortic homografts, which showed unfavorable outcomes 10 or 15 years after the procedures. (7)

The development of endovascular methods is also highly dependent on technological innovations, which must be reasonably weighed up over time. For example, a warning sign would indicate that today, implanting transcatheter valves in young patients –which may fail over time– would mean passing on disastrous operations to our fellow surgeons in the future.

In the United States, several cross-training programs are already preparing new surgeons in cardiac endovascular techniques, either through elective rotation during the residency, a fellowship, or a proctorship, under expert supervision. (8) We are aware that acquiring transcatheter skills requires time, knowledge, and interest of interventional cardiologists in teaching the procedures to those they may consider potential competitors. But at the same time, it is true that interventional cardiologists in Argentina are also learning to use most of these techniques, which are rapidly mutating and evolving. Maybe they could go down this path together with the surgeons. In addition, current endovascular surgeons would be able to serve as good partners to help in the first steps of this conversion process.

An open and frank discussion on the scope and limitations of transcatheter procedures would be helpful in drawing up a standardized endovascular curriculum to guide the future practice of cardiac surgery in the coming years. Undoubtedly, this adaptation to percutaneous technologies requires a change in the mindset of the new generations of surgeons, a transformation that must be promoted and supported by

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leaders of the specialty, scientific societies, postgraduate training schools, and the technology industry, so that they all facilitate access to formal training and accreditation programs. Surgeons trained in all the techniques will then be able to choose between open surgery, a minimally invasive approach, a hybrid procedure or a transcatheter intervention, with fewer conflicts of interest. The possibility of handling this full range of treatment options will facilitate fairer decision-making and less biased by technical limitations of a skilled operator exclusively interested in transcatheter techniques.

Conflicts of interest

None declared.

(See authors' conflicts of interest forms on the website/ Supplementary material).

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