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► To cite this version:

Albano C Meli, Ottavio Alfieri. Scientists on the Spot: advances in cardiac surgery. Cardiovascular Research, 2019, 10.1093/cvr/cvz008 . hal-02017301

HAL Id: hal-02017301

<https://hal.science/hal-02017301>

Submitted on 15 Jun 2020

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Scientists on the Spot: advances in cardiac surgery

Albano C. Meli¹ and Ottavio Alfieri^{2*}

¹INSERM U1046, 371, avenue du Doyen G. Giraud, 34295 Montpellier cedex 5, France; and ²San Raffaele University Hospital, via Olgettina 60, 20132 Milan, Italy

Watch the interview here: youtu.be/Q4mFmpinHNc



Summary of interview

Speaking of the key milestone discovery in his long and storied career as a cardiac surgeon, Professor Ottavio Alfieri discussed treatment of mitral insufficiency using a special method known as the Edge-to-Edge technique, or 'Alfieri stitch'. This involves putting together the two mitral leaflets at the point where mitral regurgitation is occurring. The simplicity of this technique was very attractive to innovators exploring new methods to treat mitral regurgitation. As such, it is the basis for a percutaneous approach to treat mitral regurgitation, where the stitch operation is reproduced with a clip introduced into the heart using a catheter. This allows for a minimally invasive means by which to repair regurgitation.

The field of cardiac surgery has been replete with novel innovations in the last 50 years. Professor Alfieri considers that epidemiology should be paid attention to as we move forward. The ageing population is leading

Highlight: In this *Onlife* interview, Professor Alfieri, winner of the ESC Gold Medal 2018, talks about achievements in surgery for valvular heart disease, in particular his Edge-to-Edge technique, as well as the future of cardiovascular surgery.

Biography:

Professor Alfieri is the Chief and Chairman of cardiac surgery at the S. Raffaele University Hospital in Milan. He graduated in Medicine and Surgery at the University of Parma in 1971. He was very active in the treatment of congenital heart diseases in Italy (Bergamo) and then in USA (Buffalo and Birmingham).

He is worldwide known for his excellent expertise in valvular heart surgery and was awarded the ESC Gold Medal 2018 for his tremendous achievement. His main expertise is in mitral valve repair surgery. In the '90s, he developed the Edge-to-Edge technique (the so-called 'Alfieri stitch') to repair the mitral valve. This technique turned out to be the basis for the most used type of percutaneous correction of mitral regurgitation.

Recently, the Alfieri Heart Foundation was founded with Professor Alfieri as the President in order to promote innovation, research and development of well-defined projects aimed at fighting heart diseases. One of the Foundation's objective is to offer optimal training to new generations of physicians.



Dr Albano C. Meli from Inserm interviews Professor Ottavio Alfieri, Professor of Cardiac Surgery and Chief of the Department of Cardiac Surgery at San Raffaele University Hospital, Milan.

to more and more elderly people with comorbidities, emphasizing the importance of non-invasive procedures. The evolution of surgery will therefore not be towards a surgeon's scalp, but instead transcatheter operations—whereby a catheter inserted through the vascular system

* Corresponding author. Tel: +390226437102; fax: +390226437125, E-mail: alfieri.ottavio@hsr.it

can allow the heart to be accessed and operated upon without causing as much unnecessary damage.

Further afield, Professor Alfieri spoke about advances in treating heart failure. Heart failure is becoming a common disease; particularly in the elderly. There are three possible scenarios in how heart failure can be managed practically in the future with developing technologies. First is using an artificial mechanical heart, however, this would require a significant breakthrough to be made in energy technology, to move beyond a

transcutaneous approach to transmitting energy. Second is the use of transgenic pigs for growing hearts, but there are obvious ethical and religious problems to be found here. Lastly is the engineered heart, merging together two technologies: 3D printing and tissue-engineering. This opens the possibility of creating a beating heart with myocardial cells originating from the patient himself/herself. While this would be a remarkable advance, it is early days and such an advance is still a long way off.