

Editorial comment

Comentario editorial

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After 12 years of excellent editorial leadership by Dr. Alfredo Rodríguez, we enthusiastically assume the challenge of leading the Argentinian Journal of Interventional Cardiology (RACI), a highly esteemed publication among those who practice interventional cardiology.

I appreciate the trust placed in me by the outgoing president of CACI, Dr. Martín Cisneros, and the new president, Dr. Juan Fernández. Both of them have notably attended and actively participated in numerous scientific meetings and ongoing discussions aimed at fair compensation in our specialty. We thank all former members and new additions to the Editorial Board, whose collaboration and commitment to RACI Journal will be much welcomed.

Sad news has recently shaken our field: Alain Cribier, the pioneer who performed the world's first percutaneous aortic valve implantation (TAVI) in 2002, passed away at the age of 79 on February 19, 2024.

Dr. Cribier had served as the Head of Cardiology at University of Rouen Charles Nicolle Hospital, in France.

Born in Paris in 1945, he studied at University of Paris, where he eventually specialized in cardiology. Initially drawn to cardiovascular surgery, he later committed to interventional cardiology due to its vast possibilities.

It was in Rouen where, in 1986, Dr. Cribier conducted the first of several pioneering procedures: the first cases of balloon valvuloplasty for the treatment of calcified aortic valve stenosis¹, published in a leading medical journal: *The Lancet*².

As a consequence, he became renowned worldwide; however, in a great show of intellectual honesty, he acknowledged a significant limitation of valvuloplasty: the high rate of mid-term restenosis.

The evolution of this procedure led him to initiate, in the 1990s, a new research program on a percutaneous heart valve. His focus shifted towards valve restenosis, looking to find a procedure to keep the valve open after balloon valvuloplasty. This resulted in the idea of using a bioprosthesis to prevent valve restenosis after balloon valvuloplasty. The challenge was to find the right device.

The first step was taken in 1989, when Henning-Rud Andersen first implanted a valve mounted on a balloon-expandable catheter—an original model—inside the aorta of pigs, using a handmade mesh that included a porcine valve. The results, finally published in 1992³ after being rejected by several journals, did not immediately lead to human applications.

Concurrently, Dr. Cribier helped establish a company dedicated to developing and marketing percutaneous aortic valve replacement technology.

He further solidified his reputation when, on April 16, 2002, he performed the first TAVI procedure on a 57-year-old patient referred to Rouen after being deemed inoperable due to cardiogenic shock. Dr. Cribier and his team correctly believed that the percutaneous technique could very well be the only solution. They reached procedural success through an antegrade transeptal approach. This first case⁴, published in *Circulation*, had profound global impact.

The patient's recovery was remarkable: immediately after valve implantation, color returned to his face, and he started speaking. Such was Dr. Cribier's own account of the procedure⁵. However, the patient had experienced several cardiac arrests before entering the cath lab, where he then had to be resuscitated again.

After Dr. Cribier's initial success, more cases followed. The journey began almost 40 years ago, with the early days of balloon aortic valvuloplasty; then, 20 years ago, we saw the first TAVI procedure. Today, thanks to Cribier's pioneering work, TAVI is the current standard of care for severe aortic stenosis.

On another note, on March 5 of this year, David Antoniucci, a prominent interventional cardiologist from Florence (Italy) who authored numerous trials, passed away. David was featured as speaker in several congresses organized by the Interventional Cardiology Research Center (CECI), where he also performed live coronary and carotid angioplasty procedures, as well as TAVI cases, with great knowledge and technical skill.

He was the first physician in Italy to introduce primary angioplasty in cases of myocardial infarction (MI)⁶: in the early 1990s, in Florence, he created the Careggi model for cardiovascular care, which was met with admiration by some and skepticism by others. Ambulances operated around the clock; these efforts came at great personal sacrifice⁷. Today, this seems to be the standard, but at the time opinions ranged from envy to disapproval.

Following the trend of implementing new techniques, David set forth to refine balloon angioplasty in cases of acute MI through conventional stenting. In this case too, any trace of doubt was overcome by the positive outcomes described in the FRESCO study⁸, with a decrease in the rates of restenosis, reocclusion, and reinfarction.

David led another study related to acute MI: a multicenter, randomized trial comparing the use of abciximab⁹ in stent angioplasty vs. non-use of abciximab in high-thrombotic-risk patients. This trial included our participation as an Argentine site.

Finally, David actively participated in the ISAR REACT 5 study of ticagrelor vs. prasugrel in patients with acute coronary syndromes (ACS) with or without ST-segment elevation¹⁰. As a result, the incidence of death, MI, or stroke was lower among those who received prasugrel. His last lecture in Buenos Aires referred to this study.

To conclude, I want to add a comment on two interesting recently published trials: the PREVENT and the DanGer Shock studies. In the PREVENT study¹¹ (conducted in Korea and published in Lancet), after angioplasty of culprit lesions in patients with ACS and chronic coronary syndrome, any untreated non-culprit lesion with $\geq 50\%$ angiographic diameter stenosis was assessed functionally using fractional flow reserve (FFR). Additionally, non-flow-limiting intermediate lesions (FFR > 0.80) were analyzed using intracoronary imaging techniques such as grayscale intravascular ultrasound (IVUS), radiofrequency IVUS, a combination of grayscale IVUS and near-infrared spectroscopy (NIRS), or optical coherence tomography (OCT), at the discretion of the treating interventional cardiologist. In this study, involving patients with non-flow-limiting vulnerable plaque, the combination of preventive angioplasty and optimal medical therapy led to a decrease in major adverse cardiac events during the long-term follow-up, compared with medical therapy alone. These striking findings offer new perspectives on angioplasty in high-risk vulnerable plaque.

The other study, DanGer Shock, presented by Dr. Jacob Eifer Møller at ACC.24 Late-Breaking Clinical Trials last April in Atlanta and simultaneously published in the NEJM¹², states that routine use of Impella CP in patients who have suffered acute MI with cardiogenic shock reduces mortality at 180 days by 12.7%, compared with the control group (45.8% vs. 58.5%; $p=0.04$), albeit with higher vascular complications.

This controlled, randomized trial on cardiogenic shock with 360 participants at 14 centers in Denmark, Germany, and the UK between 2013 and 2023 (DanGer Shock) is the first study with a mechanical circulatory support device showing a survival benefit in MI-related cardiogenic shock patients.

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REFERENCES

1. A Cribier, T Savin, N Saoudi, et al. Percutaneous transluminal aortic valvuloplasty using a balloon catheter. A new therapeutic option in aortic stenosis in the elderly. *Arch Mal Coeur Vaiss*. 1986 Nov;79(12):1678-86. PMID: 3105479
2. Cribier A, Savin T, Saoudi N, et al. Percutaneous transluminal valvuloplasty of acquired aortic stenosis in elderly patients: an alternative to valve replacement? *Lancet* 1986;1:63-7.
3. Andersen HR, Knudsen LL, Hasenkam JM. Transluminal implantation of artificial heart valves. Description of a new expandable aortic valve and initial results with implantation by catheter technique in closed chest pigs. *Eur Heart J* 1992;13:704-8.
4. Cribier A, Eltchaninoff H, Bash A, et al. Percutaneous transcatheter implantation of an aortic valve prosthesis for calcific aortic stenosis: first human case description. *Circulation* 2002;106:3006-8.
5. Alain Cribier. Development of transcatheter aortic valve implantation (TAVI): A 20-year odyssey. *Archives of Cardiovascular Disease* 2012;105:146-152.
6. Bolognese L, Reccia MR, Sabini A. Contribuciones italianas a la historia del tratamiento del infarto agudo de miocardio. *Minerva Cardiol Angiol* 2024;72:32-40.
7. Antoniucci D, Santoro GM, Bolognese L, et al. Angioplastia coronaria primaria para el infarto agudo de miocardio asociado con disfunción ventricular izquierda grave. Resultados en 50 pacientes. *G Ital Cardiol* 1995;25:1265-71.
8. Antoniucci D, Santoro GM, Bolognese L, et al. A clinical trial comparing primary stenting of the infarct-related artery with optimal primary angioplasty for acute myocardial infarction: results from the Florence Randomized Elective Stenting in Acute Coronary Occlusions (FRESCO) trial. *J Am Coll Cardiol*. 1998 May;31(6):1234-9. doi: 10.1016/s0735-1097(98)00097-7. PMID: 9581713.
9. Antoniucci D, Rodríguez A, Hempel A, et al. A Randomized Trial Comparing Primary Infarct Artery Stenting with or Without Abciximab in Acute Myocardial Infarction. *JACC Vol. 42, No. 11, 2003 Abciximab in AMI* December 3, 2003:1879-85.
10. Schüpke S, Neumann FJ, Menichelli M, et al. ISAR-REACT 5 Trial Investigators. *N Engl J Med*. 2019 Oct 17;381(16):1524-1534. doi: 10.1056/NEJMoa1908973. Epub 2019 Sep 1. PMID: 31475799 *Clinical Trial*.
11. Seung-Jung Park, Jung-Min Ahn, Do-Yoon Kang, et al. Preventive percutaneous coronary intervention versus optimal medical therapy alone for the treatment of vulnerable atherosclerotic coronary plaques (PREVENT): a multicentre, open-label, randomized controlled trial. *PREVENT Investigators. Lancet*. 2024 Apr 4; S0140-6736(24)00413-6. doi: 10.1016/S0140-6736(24)00413-6.
12. Møller J, ED, Engstrøm T, Jensen LO, et al. Microaxial Flow Pump or Standard Care in Infarct-Related Cardiogenic Shock. Published April 7, 2024. *N Engl J Med* 2024;390:1382-1393 DOI: 10.1056/NEJMoa2312572. Vol. 390 No. 15.