

Editorial

Percutaneous Recanalization of Coronary Chronic Total Occlusions: The Case for Centralized Care

Revascularización percutánea de las oclusiones crónicas: la importancia de centralizar los procedimientos

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While interventional techniques have advanced and specialized equipment has become available, percutaneous coronary intervention (PCI) in chronic total coronary occlusion (CTO) remains technically challenging and is undertaken in a minority of patients found to have these lesions at angiography.¹ This probably stems from a number of reasons: a) the perceived complexity of the procedure; b) increased complication rates; and c) the lack of definitive data supporting a survival benefit of CTO-PCI over optimal medical therapy (OMT).

In this issue of *Rev Esp Cardiol*, Amat-Santos et al.² add to the growing body of large contemporary registries by reporting the results of the Iberian Registry of CTO-PCI. The registry includes procedural details and outcomes of 1000 CTO-PCIs performed in 952 patients at 24 Spanish centers over a 2-year period. All centers included in the study had at least 1 dedicated CTO specialist, defined as an operator who had handled at least 50 CTO cases and who had been mentored in the technique. The overall procedural success rate of CTO-PCI in this registry was 79.4%, which is well within the range of success rates of 68% to 85.5% reported in contemporary CTO-PCI registries.^{3–5} Notably, this success rate was attained despite differential use of advanced CTO techniques such as less use of the retrograde approach, used in 9.2% in the Iberian registry compared with 28% to 34% in other contemporary registries,^{6,7} and intravascular ultrasound guidance used in around 15% of cases compared with over 40% in other registries.^{5,7} Likewise, while serious complications did occur, notable among them a coronary perforation rate of 3%, overall serious and life-threatening complications were acceptably low and comparable to contemporary registries. Importantly, no procedural deaths were recorded and no patients were referred for urgent surgical revascularization. Successful CTO-PCI was associated with significantly greater functional improvement compared with procedural failure but was not associated with a mortality benefit.

The authors of this registry are to be commended for this important undertaking. It is essential that we track our outcomes on

an institutional and on a national basis to ensure all patients are offered high quality and safe PCI, especially in technically challenging PCI procedures, such as CTO-PCI. Indeed, the major findings of this registry are that PCI-CTO, as performed in the participating centers, is both safe and associated with acceptable success rates.

However, a number of important issues remain unresolved. First and foremost is the question of generalizability to the entirety of patients undergoing CTO-PCI in the Iberian Peninsula. Only 15.8% of patients undergoing CTO-PCI were included in the registry. Presumably, the centers not included in the registry were less likely to have a dedicated CTO specialist on staff. Hence, it is unknown whether the majority of CTO-PCI performed in Spain are associated with the favorable results seen in this registry. Additionally, among the 32 sites chosen for the registry, all with at least 1 dedicated CTO specialist on staff, only 24 contributed cases to the registry, and among the 24 centers that did contribute cases, there was marked variability in reported procedural success rates, which ranged from 68% to 91%. Importantly, the success rates were higher in the top quartile according to number of procedures. An additional weakness of this and indeed of most registries is the lack of data regarding the presence and extent of ischemia. While the COURAGE trial failed to show a prognostic benefit for PCI compared with OMT, the nuclear substudy⁸ indicated that mitigating ischemia, which was more common in the PCI arm, was associated with improved long-term prognosis. Any contemporary attempt to answer the question of whether CTO-PCI is associated with improved prognosis must factor in the issue of ischemia. This is especially pertinent given that less than one third of patients in the study had Canadian Cardiovascular Society grade III to IV angina. Indeed, it is difficult to justify the risk of CTO-PCI in patients without documented significant ischemia.

Two major questions remain. The first is the holy grail of CTO-PCI, namely, whether CTO-PCI influences long-term prognosis. The Iberian registry, sadly, cannot contribute to this most important of questions. The second, more practical, question is whether complex CTO-PCI should be relegated to designated national centers of excellence, based on high procedural volume and documented clinical performance. The Iberian Registry indicates that even in centers with designated trained and experienced CTO operators, a gradient of success is observed with an advantage noted for high-volume centers and, in my opinion, supports the

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accreditation of specialized CTO centers to handle complex CTO-PCI cases.

CONFLICTS OF INTEREST

None declared.

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