

Late Follow-up of Patients Treated with DES for Acute Myocardial Infarction in the DESIRE Registry

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The advent of drug-eluting stents (DES) heralded a quasi-revolution in the field of Interventional Cardiology. With a potential solution to the problem of in-stent restenosis, these devices permitted interventionalists to perform percutaneous coronary intervention (PCI) in an expanding number of patient and lesion subsets, without fear that patients would experience recurrent luminal compromise at the site of the index lesion, in most cases necessitating a repeat intervention. While DES have proven to be highly effective in reducing repeat revascularization procedures after the index PCI, it is important to note that these devices do little to modify the overall atherothrombotic disease process that leads patients to present for the index PCI. In this regard, the analysis from the DESIRE Registry by Costa et al.¹ published in this issue of the **Revista Brasileira de Cardiologia Invasiva** is very informative.

The DESIRE Registry is a large, single-center registry of patients treated with DES for unselected indications. Uniquely, this registry contains long-term follow-up of these patients, which permits examination of long-term efficacy and safety among patients treated outside of the highly selected realm of randomized clinical trials. In the current publication, the authors compared the outcomes of patients treated with DES for acute myocardial infarction (AMI) indications to those treated for non-AMI indications. While these populations are clearly different, the advantage of observational analyses is that they allow us to understand the natural history of disease states in the real world; in this case AMI PCI vs. non-AMI PCI.

In this analysis, the overall rate of repeat revascularization of the target lesion over the follow-up period was very low (< 5%), and in fact similar between both AMI and non-AMI patients. This finding is reassuring, confirming the efficacy of DES in reducing recurrent restenosis and demonstrating the lack of a “catch-up”

phenomenon in this registry. However, the authors observed a more than doubling of the rate of cardiac death among AMI patients treated with DES compared to non-AMI patients. While the rate of recurrent myocardial infarction was non-statistically different, the rate of stent thrombosis was also higher among AMI compared to non-AMI patients.

These findings emphasize the higher overall patient risk of patients who present with AMI. AMI patients typically have a higher risk atherothrombotic profile than non-AMI patients. Patients with AMI *a priori* have already had a major cardiovascular event (the index MI), and thus are typically at higher risk for recurrent cardiovascular events in the future. In a preventive sense, they require “secondary” rather than “primary” measures employed to reduce future cardiovascular events. These measures most often consist of adjunctive medical therapies such as antiplatelet therapies and statins. Because DES, although they stabilize the index culprit lesion, do not modify the overall disease process in AMI patients, they are unlikely to mitigate the increased risk for recurrent events. Another potential explanation for the greater rates of cardiac death among AMI patients in this registry was the two-fold greater incidence of left ventricular dysfunction among patients presenting with AMI. Perhaps the cardiac deaths observed in this registry were related to congestive heart failure (pump dysfunction and/or arrhythmic etiologies). Thus, the finding of a greater incidence of cardiac death among AMI patients should not be unexpected, and may simply reflect the higher risk characteristics of AMI patients compared to non-AMI patients.

Costa et al.¹ also observed in their analysis that AMI patients had a significantly higher rate of stent thrombosis compared to non-AMI patients. In fact, AMI was one of the strongest multivariable predictors of stent thrombosis in this study. This observation has been noted previously in AMI studies of both DES and bare metal

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Received on: 9/18/2011 • Accepted on: 9/18/2011

stents, and a variety of potential mechanisms for this have been elucidated and are outlined by Costa et al.¹. We as interventionalists clearly have room to improve in order to lower the rates of stent thrombosis among AMI patients. Potential strategies to lower the rates of stent thrombosis include assiduous attention to PCI technique through appropriate stent sizing (including potentially the use of intravascular ultrasound) and consideration of the use of thrombectomy in appropriate cases. Additionally, the use of more potent periprocedural anticoagulant and antiplatelet regimens than those used in this registry has the ability to reduce the rates of stent thrombosis, albeit at a greater risk of bleeding complications.

Irrespective of these potential modifications to the practice of AMI PCI as employed in the DESIRE Registry,

the findings of Costa et al.¹ should be both reassuring and sobering at the same time. In a sense, they illustrate how far modern PCI with DES have allowed us to come, and at the same time, how much further we have yet to go.

CONFLICT OF INTEREST

The author has no conflict of interest to declare.

REFERENCE

1. Costa RA, Sousa AGMR, Costa Jr. JR, Moreira A, Maldonado G, Cano MN, et al. Evolução tardia de pacientes com infarto agudo do miocárdio tratados com stents farmacológicos na prática diária do mundo real – Subanálise do Registro DESIRE (*Drug-Eluting Stent In the REal World*). Rev Bras Cardiol Invasiva. 2011;19(3):xxx-xxx.