Predictive Value of the SYNTAX Score in Culprit and Nonculprit Vessel Disease

Valor predictivo de la puntuación SYNTAX en la lesión vascular culpable y no culpable

To the Editor,

I have read with great interest the article entitled "Multivessel Versus Culprit-only Percutaneous Coronary Intervention in ST-segment Elevation Acute Myocardial Infarction: Analysis of an 8-year Registry" by Galvão Braga et al.[1] published in your journal. The investigators reported that in patients with ST-segment elevation acute myocardial infarction and multivessel coronary artery disease, a multivessel percutaneous coronary intervention strategy was associated with lower rates of mortality, unplanned repeat revascularization, and major acute cardiovascular events.[1]

The angiographic-based SYNTAX (SYNergy between percutaneous coronary intervention with TAXus and cardiac surgery) score (SS) has consistently been shown to be an independent predictor of major acute cardiovascular events.[2] Several reasons might be related to the increased risk of major acute cardiovascular events in patients with high SS, including a higher number of obstructive plaques, a larger necrotic core, and more complex lesions. Angiographic diameter stenosis of the nonculprit plaques in the high SS group was significantly higher than that in the intermediate and low SS groups. The high SS group had a significantly lower minimum fibrous cap thickness in the culprit lesion than the intermediate and low SS groups. Additionally, the minimum fibrous cap thickness in the nonculprit lesion was significantly lower in the high SS group than in the intermediate and low SS groups. The frequencies of lipid-rich plaque, thin cap fibroatheroma, and plaque rupture in the culprit lesion were significantly higher in the high SS group than in the intermediate and low SS groups. These findings imply that patients with high SS may have increased plaque vulnerability in culprit as well as nonculprit lesions. In addition, the increased vulnerability of nonculprit plaques in patients with high SS might thus provoke fatal or nonfatal coronary events even after successful revascularization for culprit lesions. SS after percutaneous coronary intervention was at least as strong a predictor of subsequent ischemic events as SS calculated before percutaneous coronary intervention.[3,4] Iqbal et al.[5] reported that multivessel intervention may be considered in patients with nonculprit left anterior descending artery disease.

In light of this knowledge, a new scoring system including parameters, such as SS, nonculprit left anterior descending artery disease, renal disease, and severe left ventricular dysfunction, may shed light to determine of revascularization strategy in patients with ST-segment elevation acute myocardial infarction and multivessel disease.

Levent Cerit

Department of Cardiology, Near East University, Nicosia, Cyprus

E-mail address: drcerit@hotmail.com

Available online 3 March 2017

REFERENCES

1. Galvão Braga C, Cid-Álvarez AB, Redondo Diéguez A, et al. Multivessel Versus Culprit-only Percutaneous Coronary Intervention in ST-segment Elevation Acute Myocardial Infarction: Analysis of an 8-year Registry. *Rev Esp Cardiol.* 2017;70:425–432.
2. Mohr FW, Morice MC, Kappetein AP, et al. Coronary artery bypass graft surgery versus percutaneous coronary intervention in patients with three-vessel disease and left main coronary disease: 5-year follow-up of the randomised, clinical SYNTAX trial. *Lancet.* 2013;381:629–636.
3. Díez-Delhoyo F, Sarnago Cebada F, Cressa LM, Rivera-Juárez A, Elízaga J, Fernández-Avilés F. Prognostic Value of the Residual SYNTAX Score in Octogenarian Patients With Non–ST-elevation Acute Coronary Syndrome. *Rev Esp Cardiol.* 2016;69:217–219.
4. Genereux P, Palmerini T, Caixeta A, et al. Quantification and impact of untreated coronary artery disease after percutaneous coronary intervention. *J Am Coll Cardiol.* 2012;59:2165–2174.
5. Iqbal MB, Nadra IJ, Ding L, et al. Culprit Vessel Versus Multivessel Versus In-Hospital Staged Intervention for Patients With ST-Segment Elevation Myocardial Infarction and Multivessel Disease: Stratified Analyses in High-Risk Patient Groups and Anatomic Subsets of Nonculprit Disease. *JACC Cardiovasc Interv.* 2017;10:11–23.

SEE RELATED CONTENT:
http://dx.doi.org/10.1016/j.rec.2016.09.027
http://dx.doi.org/10.1016/j.rec.2017.02.037

http://dx.doi.org/10.1016/j.rec.2017.02.010
1885-5857/

Predictive Value of the SYNTAX Score in Culprit and Nonculprit Vessel Disease. Response

Valor predictivo de la puntuación SYNTAX en la lesión vascular culpable y no culpable. Respuesta

To the Editor,

We read with great interest the Letter to the Editor by Levent Cerit regarding the article "Multivessel Versus Culprit-only Percutaneous Coronary Intervention in ST-segment Elevation Acute Myocardial Infarction: Analysis of an 8-year Registry".[1] As the author points out, there are several reasons that might explain the worse prognosis of patients with ST-elevation acute myocardial infarction and multivessel coronary disease, especially when they have a high SYNTAX score. The burden of anatomic coronary atherosclerosis, whether obstructive or nonobstructive, is likely to be associated with more subclinical atherosclerotic lesions that may rupture and cause an adverse clinical outcome.[2,3] In patients with ST-elevation acute myocardial infarction and multivessel disease who undergo primary percutaneous coronary intervention of the culprit artery, quantification of the remaining coronary artery disease by the residual SYNTAX score may help to identify patients who are at increased risk for adverse events.[4] Indeed, in our population, the residual SYNTAX score was an independent predictor of major acute cardiovascular events and all-cause mortality during follow-up; these data have been submitted for publication.

Presently, there is no consensus regarding the management of nonculprit lesions after primary-primary percutaneous coronary intervention. The definition of a score, including anatomic complexity of residual disease, to identify patients who will clearly benefit from multivessel revascularization is desirable, although probably utopic. There are still many questions that need clarification: considering patient, operator and lesion specificities, is standardization possible? Should we treat ischemic lesions,

vulnerable plaques or both? Should vulnerable patients (eg, those with left ventricular dysfunction, renal disease, or diabetes) be treated more aggressively?

Until we have an evidence-based strategy, clinical judgement based on Heart Team discussion should be pursued in patients with ST-elevation acute myocardial infarction and complex multivessel disease.

Carlos Galvão Braga,[a,b,*] Ana Belén Cid-Álvarez,[a] Alfredo Redondo Diéguez,[a] and Ramiro Trillo-Nouche[a]

[a]*Servicio de Cardiología, Complejo Hospitalario Universitario de Santiago de Compostela, Santiago de Compostela, A Coruña, Spain*
[b]*Serviço de Cardiologia, Hospital de Braga, Braga, Portugal*

[*] Corresponding author:
E-mail address: carlos.galvaobraga@gmail.com (C. Galvão Braga).

Available online 23 March 2017

REFERENCES

1. Galvão Braga C, Cid-Álvarez AB, Redondo Diéguez A, et al. Multivessel Versus Culprit-only Percutaneous Coronary Intervention in ST-segment Elevation Acute Myocardial Infarction: Analysis of an 8-year Registry. *Rev Esp Cardiol.* 2017;70:425–432.
2. Mancini J, Hartigan P, Shaw L, et al. Predicting outcome in the COURAGE trial (clinical outcomes utilizing revascularization and aggressive drug evalutation). *JACC Cardiovasc Interv.* 2014;7:195–201.
3. Mushtaq S, Gonçalves PA, Garcia-Garcia H, et al. Long-term prognostic effect of coronary atherosclerotic burden: validation of the computed tomography-Leaman score. *Circ Cardiovasc Imaging.* 2015;8:e002332.
4. Díez-Delhoyo F, Sarnago Cebada F, Cressa LM, Rivera-Juárez A, Elízaga J, Fernández-Avilés F. Prognostic Value of the Residual SYNTAX Score in Octogenarian Patients With Non–ST-elevation Acute Coronary Syndrome. *Rev Esp Cardiol.* 2016;69:217–219.

SEE RELATED CONTENT:
http://dx.doi.org/10.1016/j.rec.2017.02.010

http://dx.doi.org/10.1016/j.rec.2017.02.037
1885-5857/