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The role of optical coherence tomography (OCT) in ST segment elevation myocardial infarction (STEMI) with normal or near normal coronary arteries

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Patients presenting with typical symptoms of acute coronary syndrome (ACS) but without critical obstruction on visual angiography have a prognosis that is not as benign as previously thought. The pathogenesis of ACS without coronary obstruction is complex and not fully clarified, the study of intracoronary optical coherence tomography (OCT) may help to clarify it.

Methods: A retrospective observational study of ST elevation myocardial infarction (STEMI) patients without obstruction at angiography was performed. Between April 2012 and August 2013 eleven patients with STEMI and with nonobstructive coronary artery disease in coronary angiography was referred for primary angioplasty. OCT was performed in all the patients.

Results: Mean age 56±12 years, males (63%), hypertension (36%), type 2DM (18%), Dyslipidemia (36%) and smoking (46%). Responsible myocardial territory was the left anterior descending in 73%. 45.5% had some alteration in segmental contractility. In 45% of the angiographies no alteration was found and in the remainder minor alterations were found: mild stenosis (27%), discrete radiolucent image (18%), light contrast retention (9%). OCT was performed in the responsible vessel and in the vessel in which a minor finding was observed during coronariography. In 56% the OCT did not identify any abnormality in 27% a culprit lesion with ulceration and /or adhered thrombus was identified, in one case a small fissure was detected and in another case remains of thrombotic material without culprit lesion was found. The concordance between coronariography and OCT was moderate in 27% of cases with mild coronariography findings nothing was found in the OCT and in the cases with findings in OCT, 20% of them had normal coronariography. Of the 3 patients with mild angiographic stenosis a culprit ulcerated lesion was found in two of them, and of the 2 cases with radio lucent image in one of them a culprit lesion was identified with the OCT. Stent was implanted in 3 (27%) cases in which a culprit and unstable lesion was identified despite not visualizing angiographic stenosis. In the case of coronary fissure, conservative management and clinical follow up was performed with repeating coronariographies and OCT studies until complete resolution was achieved. The mean follow-up of 21±5 months revealed all patients were asymptomatic with no clinical event reported.

Conclusion: OCT study may influence the therapeutic approach to patients with STEMI with normal or near normal coronary arteries.

Biography

Alejandro Gutierrez Barrios graduated from Cadiz University (Spain) in 2001 at the age of 24 years. After graduation he moved to Puerta Del Mar University Hospital in Cadiz where he completed his residency in cardiovascular medicine and a fellowship in interventional cardiology (2002-2007). In 2009 he moved to Jerez University Hospital to take up his current position as interventional cardiologist and Assistant Professor of cardiovascular medicine. He is a member of the European Society of Cardiology. He has several publications in peer-reviewed journals and more than 20 presentations in national and international cardiology conferences.

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