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Impact of Chronic Total Occlusion of the Coronary Artery on Long-Term Prognosis in Patients With Ischemic Systolic Heart Failure

Insights From the COMMIT-HF Registry

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CME Objective for This Article: At the end of this activity the reader should be able to: 1) consider the prevalence of ischemic cardiomyopathy in patients with heart failure; 2) appreciate the long-term prognosis of patients with ischemic cardiomyopathy in the presence of chronic total occlusion; and 3) compare the differences in long-term mortality among patients with acute coronary syndromes in the presence and absence of a chronic total occlusion.

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ABSTRACT

OBJECTIVES This study sought to assess the impact of chronic total occlusion (CTO) on long-term prognosis in patients with ischemic cardiomyopathy.

BACKGROUND The presence of concomitant CTO in a nonculprit lesion in acute coronary syndromes is associated with worse prognosis. Coronary artery disease is the main cause of heart failure and in many cases at least 1 CTO is observed.

METHODS The study included all patients with systolic heart failure who underwent elective coronary angiography and were registered from January 2009 to December 2014 in the ongoing single-center COMMIT-HF (COnteMporary Modalities In Treatment of Heart Failure) registry (NCT02536443). The patients were divided into 2 groups with regard to CTO presence. All of the analyzed patients were followed up for at least 12 months with all-cause mortality defined as the primary endpoint.

RESULTS Of the 675 patients fulfilling the inclusion and exclusion criteria, 278 patients (41.2%) had 1 or more CTOs of a major coronary artery (+CTO), and in 397 patients (58.8%) the presence of the CTO was not observed (−CTO). The 12-month mortality for the +CTO and −CTO patients was 19.4 % and 10.3 %, respectively ($p < 0.001$), evident also after 24 months (26.6% vs. 17.6%; $p = 0.01$). After a multivariate adjustment for differences in baseline characteristics, the presence of CTO remained significantly associated with higher 12-month mortality (relative risk: 1.84: 95% confidence interval: 1.18 to 2.85; $p = 0.006$).

CONCLUSIONS Our analysis showed that in patients with ischemic heart failure the presence of the CTO is related to worse long-term prognosis. (J Am Coll Cardiol Intv 2016;9:1790–7) © 2016 by the American College of Cardiology Foundation.

It is estimated that 1% to 2% of people living in the developed countries suffer from systolic heart failure (HF), which is currently a global pandemic and a major medical and social problem worldwide (1). According to various studies, coronary artery disease (CAD) is the most frequent reason for systolic HF development, with ischemic etiology estimated to be responsible for around two-thirds of HF cases (2,3). In the subpopulation of systolic ischemic HF, advanced CAD is diagnosed in most patients with a previous history of myocardial infarction (MI), frequently with no possibility of coronary revascularization and at least one chronic total occlusion (CTO).

It has been demonstrated that CTO of other than infarct-related arteries in patients hospitalized due to acute coronary syndrome (ACS) as well as with stable coronary disease is strongly associated with higher rates of in-hospital and long-term mortality than in patients without CTO (4–6). To our knowledge, there is lack of data evaluating the presence of CTO in patients with ischemic systolic HF. Therefore, having at our disposal data of a large group of patients with ischemic cardiomyopathy in a high-volume cardiovascular center, we aimed to analyze the impact of CTO on long-term prognosis in this population of patients. To our best knowledge this is the first such report.

METHODS

DESIGN OF THE REGISTRY. The COMMIT-HF (COnteMporary Modalities In Treatment of Heart Failure) is a single-center, all-comers observational study that is currently underway in a high-volume PCI academic center (Department of Cardiology Silesian