Cardiologia Croatica. 2013;8(7-8):e4-e5.

Extended abstract

Cardiac magnetic resonance and cardiac computed tomography in the daily work up of patients with acute heart failure and acute chest pain syndromes

Andreas Rolf*, Susanne Moellmann, Won-Keun Kim, Martina Werle, Helge Moellmann, Veselin Mitrović, Christian Hamm

Kerckhoff-Klinik GmbH, Bad Nauheim, Germany

Background: Acute chest pain and acute heart failure syndromes are the two most frequent causes of admission to acute cardiac care units. In the recently published ESC guidelines for the management of NSTEMI and the management of acute and chronic heart failure both CT and MRI are acknowledged as IA/IIB indications for the work up of these patients. We propose a systematic workflow based on symptoms at presentation, clinical risk calculations and invasive strategy, which integrates cardiac MRI and CT.
Methods: Patients are stratified according to a decision tree based workflow. The 1st step differntiates chest pain and acute heart failure patients. Chest Pain patients are then further stratified according to ESC guideline defined risk factors and grace score results. Patients in the low risk category with low to intermediate pretest probability are then referred for coronary CTA and triple rule out, patients in all other categories are followed up invasively. If patients are troponin positive and have rule out of CAD, they are referred for cardiac MRI to diagnose acute myocarditis or tako tsubo cardiomyopathy. If patients are admitted for acute heart failure symptoms and the etiology of reduced left ventricular function remains unclear they are put on optimal medical treatment until stable enough for invasive angiography, if ischemic cardiomyopathy is ruled out, all patients undergo cardiac magnetic resonance to differentiate acute myocarditis from chronic dilated cardiomyopathy.
Discussion: By adherence to the above described workflow a large number of patients with acute myocarditis could be detected, despite normal ECG, echo and CRP. Specific therapy for viral myocarditis is still under debate, however early detection of myocardial inflammation might in future improve the patients outcome. Furthermore in the cohort of patients with low risk of myocardial damage triple rule out algorithms speed up the diagnostic process and therefore are cost effective and resource saving. Prospective studies of these algorithms are warranted to confirm our first experience.

KEYWORDS: cardiovascular magnetic resonance imaging, cardiac computed tomography, myocarditis, acute cardiac care.

Literature

1. Authors/Task Force M, Hamm CW, Bassand JP, Agewall S, et al. ESC Guidelines for the management of acute coronary syndromes in patients presenting without persistent ST-segment elevation: The Task Force for the management of acute coronary syndromes (ACS) in patients presenting without persistent ST-segment elevation of the European Society of Cardiology (ESC). Eur Heart J. 2011;32:2999-3054.
2. Authors/Task Force M, McMurray JJV, Adamopoulos S, Anker SD, et al. ESC Guidelines for the diagnosis and treatment of acute and chronic heart failure 2012: The Task Force for the Diagnosis and Treatment of Acute and Chronic Heart Failure 2012 of the European Society of Cardiology. Developed in collaboration with the Heart Failure Association (HFA) of the ESC. Eur Heart J. 2012;33(14):1787-847.
3. Friedrich MG, Sechtem U, Schulz-Menger J, et al. Cardiovascular magnetic resonance in myocarditis: A JACC White Paper. J Am Coll Cardiol. 2009;53(17):1475-87.

4. Henzler T, Gruettner J, Meyer M, et al. Coronary computed tomography and triple rule out CT in patients with acute chest pain and an intermediate cardiac risk for acute coronary syndrome: part 2: economic aspects. Eur J Radiol. 2013;82(1):106-11.

Received: 20th Jun 2013

*Address for correspondence: Kerckhoff-Klinik GmbH, Benekestr. 2-8, D-61231 Bad Nauheim, Germany.

Phone: +49-6032-996-2237

Fax: +49-6032-996-2848

E-mail: a.rolf@kerckhoff-klinik.de