Perfuzijska magnetska rezonanca srca u procjeni koronarne bolesti srca

Cardiac magnetic resonance perfusion imaging in detection of coronary artery disease

Aleksandra Šustar*,
Luka Bastiančić,
David Gobić,
Tomislav Jakljević,
Ivana Smoljan,
Vjekoslav Tomulić

Medicinski fakultet Sveučilišta u Rijeci, Klinički bolnički centar Rijeka, Rijeka, Hrvatska

University of Rijeka School of Medicine, University Hospital Centre Rijeka, Rijeka, Croatia

|||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

Uvod: Perfuzijska magnetska rezonaca srca, poznata i pod nazivom stres perfuzija neinvazivna je dijagnostička metoda koja se koristi za procjenu perfuzije miokarda bez izlaganja bolesnika ionizirajućem zračenju. Najčešće se primjenjuje za procjenu značajnosti oštećenja koronarnih krvnih žila. Prema preporukama *American Heart Association* lijeva klijetka podijeljena je u 17 segmenata koje opskrbljuju određene koronarne krvne žile.[1] S obzirom na varijabilnost koronarne opskrbe srčanog mišića analizirali smo u kojoj mjeri odgovaraju rezultati perfuzijske MR srca i invazivne koronarografije.

Pacijenti i metode: U 17 bolesnika sa sumnjom na koronarnu bolest srca (KBS) učinjena je perfuzijska magnetska rezonanca srca i invazivna koronarografija. Snimanje je izvršeno uređajem za magnetsku rezonancu snage polja 1m5 T (Siemens Magnetom Avanto, Njemačka) uz provođenje stres testa adenozinom u dozi 140 mcg/kg/min. Prisutnost perfuzijskog defekta uspoređena je s nalazom koronarne angiografije.

Rezultati: Rezultati ukazuju da je perfuzijski defekt šest puta više prisutan u osoba sa značajnom KBS u usporedbi s ispitanicima bez značajne KBS (omjer vjerojatnosti, engl. *likelihood ratio*; LR).

Zaključak: Perfuzijska magnetska rezonanca srca je redovito korištena dijagnostička metoda u Kliničkom bolničkom centru Rijeka. Osim stres perfuzije magnetska rezonanca srca primjenjuje se i u procjeni globalne ventrikularne funkcije te vijabilnosti miokarda što je osobito važno za kardiologa i kardijalnog kirurga radi određivanja načina daljnjeg liječenja bolesnika. Ova studija podudara se sa trenutačnim trendovima u neinvazivnoj kardiološkoj slikovnoj dijagnostici te ističe važnost primjene perfuzijske magnetske rezonance srca u određivanju značajne KBS.

Background: Cardiac magnetic resonance perfusion imaging, also called stress CMR, is a noninvasive modality for assessing myocardial perfusion without ionizing radiation. The most common indication for perfusion imaging is the detection of a significant coronary artery lesion. According to the American Heart Association (AHA) recommendations, the left ventricle wall is divided into 17 segments assigned to specific coronary artery territories.[1] In light of the variability in the coronary artery blood supply to myocardial segments, we analysed the correspondence of the 17 left ventricular segments with each coronary artery by comparing the CMR perfusion imaging and coronary angiography results.

Patients and Methods: 17 patients with suspected coronary artery disease (CAD) underwent CMR perfusion imaging followed by invasive coronary angiography. CMR imaging was performed on a 1.5 T MR system (Siemens Magnetom Avanto, Germany) with a standardised acquisition protocol using an adenosine dose of 140 μg/kg/min for 3 min. The presence of a regional perfusion defect was assessed visually and compared with coronary angiographic images.

Results: Our results revealed that subjects with angiographically significant coronary artery lesions are six times more likely to have perfusion defects in the CMR study than are those without significant CAD (positive likelihood ratio; LR).

Conclusion: CMR perfusion imaging is commonly performed in University Hospital Centre Rijeka. Along with stress perfusion imaging, it provides information about the left ventricular function and viability, which may be very helpful to cardiologists and cardiac surgeons in treating patients with coronary heart disease. This study is in line with current trends in noninvasive imaging and highlights the diagnostic utility of CMR perfusion imaging in the detection of significant CAD.

LITERATURE |||||||||||

1. Cerqueira MD, Weissman NJ, Dilsizian V, Jacobs AK, Kaul S, Laskey WK, et al; American Heart Association Writing Group on Myocardial Segmentation and Registration for Cardiac Imaging. Standardized myocardial segmentation and nomenclature for tomographic imaging of the heart. A statement for healthcare professionals from the Cardiac Imaging Committee of the Council on Clinical Cardiology of the American Heart Association. Circulation. 2002;105(4):539-42. **DOI:** http://dx.doi.org/10.1161/hc0402.102975

11. kongres Hrvatskoga kardiološkog društva s međunarodnim sudjelovanjem
6. kongres Hrvatske udruge kardioloških medicinskih sestara

Cardiologia Croatica
2016;11(10-11):457.