


2023 臺中榮民總醫院國際醫學研討會

TCVGH International Medical Conference

10.28-29 | 09:00-16:30 | 研究大樓、教學大樓、第二醫療大樓 |

	Name	Eike Nagel, MD, PhD
	Country	Germany
	Official Title	University Professor and Head of Institute for Experimental and Translational Cardiovascular Imaging
	Department	Experimental and Translational Cardiovascular Imaging

Speech Title	Ischemia Imaging with CMR (Lever-age to Studies: GadaCAD, MR-INFORM and SPINS)
Abstract :	
<p>Ischemic heart disease remains the most prevalent disease in the developed world. Cardiovascular magnetic resonance (CMR) has several unique characteristics which place it at the forefront of diagnostic modalities in patients with stable chest pain due to its excellent diagnostic accuracy, the lack of ionizing radiation, use of well tolerated contrast agents, and its unique ability to understand non-coronary reasons for chest pain. Results from perfusion CMR are highly prognostic and allow to guide patient management.</p> <p>A standard protocol includes wall motion and function, vasodilator stress perfusion and late gadolinium enhancement (LGE) and can be achieved within approximately 30 minutes. Usually, adenosine or regadenoson are used for vasodilation during the bolus injection of the gadolinium-based contrast agent which are well tolerated with very rare allergic reactions and do not harm the kidneys. Due to the accumulation of some of the early linear agents in tissue and the brain, the use of agents with high stability is mandatory in Europe and some linear gadolinium containing contrast agents are contraindicated in patients with reduced renal function in the US. Several large landmark studies have shown the excellent ability of stress perfusion CMR to diagnose or exclude coronary artery disease in patients with stable chest pain. More recently the GADACAD trials which reconfirmed the excellent diagnostic accuracy in a multicentre setting using fully blinded readers(1).</p> <p>In addition to the strong diagnostic value, the ability of CMR to prognosticate patients has been demonstrated in numerous studies including the large SPINS registry(2), which showed that both, the severity of ischemia, as well as the presence of myocardial scar are important for outcome and can be measured with perfusion CMR. The Magnetic Resonance Perfusion or Fractional Flow Reserve in Coronary Disease (MR-INFORM) trial demonstrated the ability of perfusion CMR to guide patient management(3). Despite a high pre-test likelihood only about half of the patients had a positive perfusion CMR study resulting in a significant reduction of invasive angiographies and revascularizations in patients guided by CMR. At one year follow up, both groups performed similar with a low event rate in both arms proving, that patients with stable chest pain can be safely guided using non-invasive stress perfusion CMR.</p> <p>The use of CMR in patients with stable chest pain is cost effective. Perfusion CMR has been consistently shown to be more cost-effective than SPECT, coronary angiography with or without measurement of fractional flow reserve.</p> <p>Consequently, CMR now has a strong role in most recent guidelines in patients with stable chest-pain. Importantly, however, a stress CMR study is also able to provide information on the underlying</p>	

2023 臺中榮民總醫院國際醫學研討會

TCVGH International Medical Conference

10.28-29 | 09:00-16:30 | 研究大樓、教學大樓、第二醫療大樓 |

pathophysiology of chest pain, such a microvascular disease, myocardial inflammation, or infiltration.

1. Arai AE, Schulz-Menger J, Berman D, Mahrholdt H, Han Y, Bandettini WP, et al. Gadobutrol-Enhanced Cardiac Magnetic Resonance Imaging for Detection of Coronary Artery Disease. *J Am Coll Cardiol.* 2020 Sep;76(13):1536–47.
2. Kwong RY, Ge Y, Steel K, Bingham S, Abdullah S, Fujikura K, et al. Cardiac Magnetic Resonance Stress Perfusion Imaging for Evaluation of Patients With Chest Pain. *J Am Coll Cardiol.* 2019 Oct;74(14):1741–55.
3. Nagel E, Greenwood JP, McCann GP, Bettencourt N, Shah AM, Hussain ST, et al. Magnetic Resonance Perfusion or Fractional Flow Reserve in Coronary Disease; *N Engl J Med.* 2019 Jun 20;380(25):2418-2428.