

Healthy Heart

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Honorary Editor :
Dr. Vipul Kapoor



From the Desk of Hon. Editor:

Dear Friends,

In Today's world of evidence based medicine, every clinical decision has to be backed with a concrete evidence, both guideline and investigation based. Against this backdrop, Cardiac MR(CMR) fits the bill perfectly in view of its numerous clinical applications and obvious advantages over similar contemporary investigations. CIMS hospital offers the latest cutting-edge technology in Cardiac MR(CMR) backed up with a perfect mix of experience and expertise in the field of Cardiology and Radiology.

- Dr. Vipul Kapoor

Cardiac MR-All you want to know

INTRODUCTION

Magnetic resonance imaging (MRI) has been used to image the brain and other stationary organs within the body and has become widely available as a diagnostic technique for cardiovascular imaging. It is now customary to use the term cardiovascular magnetic resonance (CMR) when referring to MRI of the heart and blood vessels.

Spin echo imaging

Predominantly used for anatomical imaging, and for identifying the fatty infiltration of the right ventricular free wall frequently seen in arrhythmogenic right ventricular cardiomyopathy (ARVC)

SSFP imaging

Used to evaluate left and right ventricular cavity sizes and function, ventricular mass, intracardiac shunts, valvular functions, and to detect intracardiac masses.

Flow velocity encoding

Technique that is used to directly measure blood flow and is useful for quantifying the severity of valvular regurgitation and stenosis, intracardiac shunt size, and the severity of arterial vascular stenosis.

GATING

Robust ECG gating generally enables good spin-echo and cine image quality during sinus rhythm and even during atrial fibrillation or in the presence of occasional atrial or ventricular premature beats

SAFETY

CMR has no ionizing effects on patients or caregivers. CMR is potentially problematic in patients with ferromagnetic metallic implants. Devices such as prosthetics heart valves, prosthetic joints, sternal wires, and intravascular stents do not preclude study with CMR at field strengths of 1.5 and 3.0 Tesla.

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Kidney Disease

Gadolinium contrast agents administered to patients with moderate to severe kidney disease (estimated glomerular filtration rate (eGFR) less than 30 ml/min) has been rarely associated with the syndrome of nephrogenic systemic fibrosis.

Clinical Application

Myocardial Disease

Late gadolinium enhancement

Late gadolinium enhancement (LGE) is thought to reflect fibrosis and irreversibly damaged myocardium including acute and chronic myocardial infarction (MI)

Infarct detection and sizing

Acute and chronic MI can be demonstrated with LGE, This technique may be used to identify the location and extent of infarction. Infarction sizing is precise and highly reproducible, with minimal interobserver and intraobserver variability. Imaging is typically performed 10 to 20 minutes after intravenous injection of 0.1 to 0.2mmol/kg of gadolinium chelate.

Myocardial viability

LGE can also used to assess myocardial viability.

Pharmacologic stress CMR

CMR has been evaluated using dobutamine, vasodilator (dipyridamole, adenosine, or regadenoson), and both agents to produce or simulate stress.

Dobutamine

Dobutamine has been used to induce stress with CMR imaging before and during infusion, allowing visualization of segments that become ischemic(ie. demonstrate reduced motion) during stress. This technique provides an accurate alternative for the diagnosis of coronary artery disease and for quantification of " myocardium at risk," it may be particularly useful for patients in whom adequate echocardiograms cannot be obtained.

Compared to dobutamine stress echocardiography, Dobutamine CMR had greater sensitivity (86 versus 74 percent) and specificity (86 versus 70 percent); the results were similar in men and women.

Adenosine

Adenosine stress CMR has been used to detect myocardial ischemia by inducing wall motion abnormalities and by creating relative perfusion differences seen in first pass perfusion imaging.

Coronary MR angiography

The production of diagnostic angiograms of the coronary arteries with CMR is another area of rapid development.

Coronary MRA may be particularly useful

Advantages and disadvantages of cardiac MRI

Advantages

- Three-dimensional
- High spatial and temporal resolution
- Intrinsic high contrast; no need for iodinated contrast
- No ionizing radiation
- No Interference from lung or bone
- Multiple imaging techniques in a single system

Disadvantages

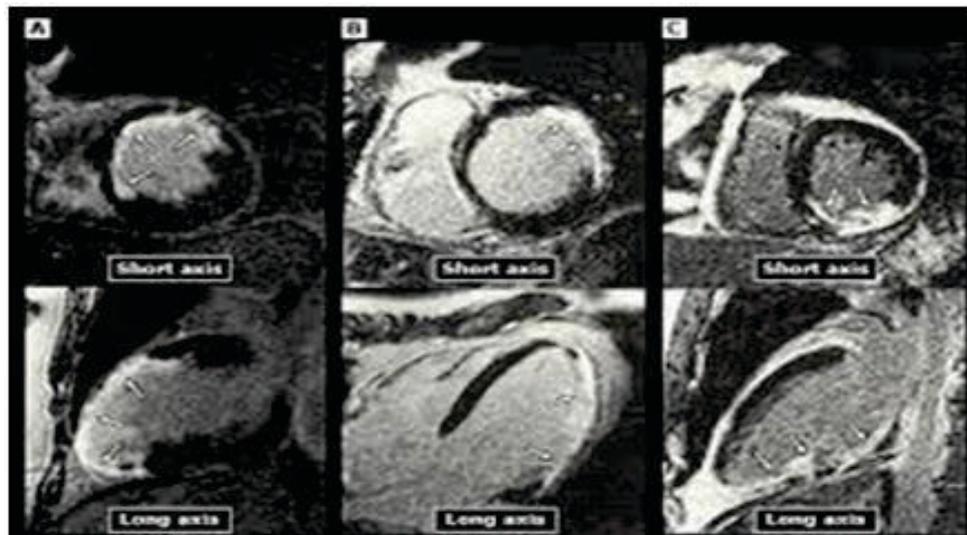
- Contraindicated with certain medical implants such as aneurysm clip, TENS units, and certain pacemakers
- Acquisition time can be lengthy
- Electrocardiogram can be distorted by the magnetic field interfering with monitoring of acutely ill patients
- Requires ECG and respiratory gating
- Claustrophobia

for the identification or characterization of anomalous coronary arteries and for monitoring coronary artery aneurysms.

SUMMARY

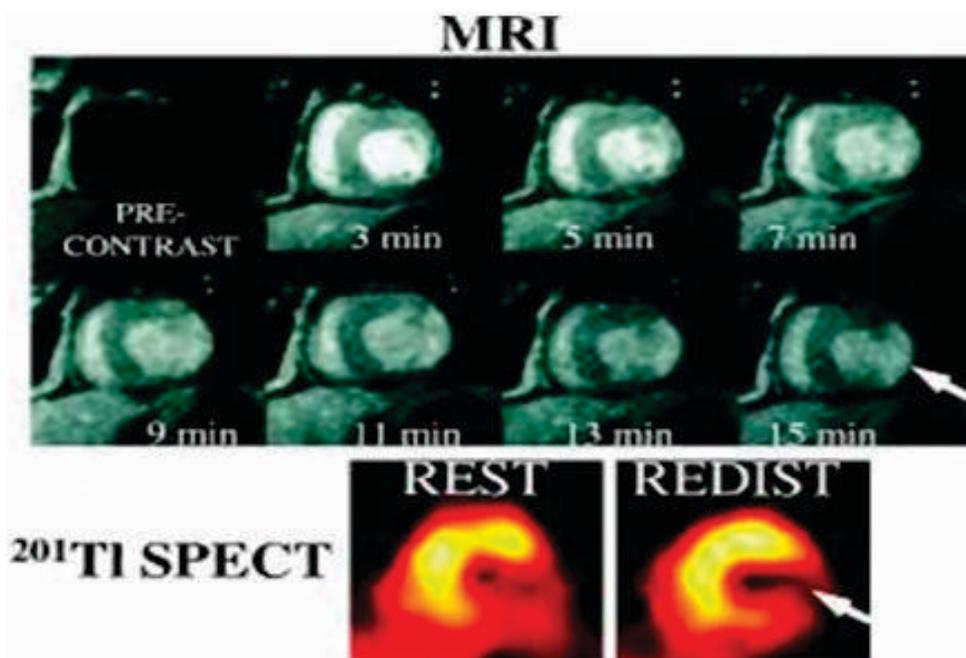
- CMR uses no ionizing radiation.
- Clinical applications of CMR include imaging of aortic, pericardial, myocardial, valvular, peripheral arteries, congenital heart disease, ischemic heart disease, and intraventricular thrombus.
- CMR enables assessment of cardiac structures largely without need for an exogenous contrast agent.
- Late gadolinium enhancement (LGE) is a technique that enables identification of myocardial fibrosis including myocardial infarction and focal myocardial fibrosis in patients with hypertrophic and other Cardiomyopathies.
- CMR enables identification and quantification of myocardial iron overload, which may be helpful for diagnosis, prognosis, and treatment.

Late gadolinium enhancement in myocardial infarction



Short-axis (upper panel) and long-axis (lower panel) late gadolinium enhancement (LGE) cardiovascular magnetic resonance (CMR) images in three patients with large myocardial infarctions (MIs). Hyper-enhanced regions (arrows) were large and predominantly transmural. In comparison, small infarcts (not shown) were not transmural.

Assessment of Myocardial viability by cardiac magnetic resonance imaging



Short-axis CMR images obtained after contrast administration are compared with corresponding short-axis ^{201}Tl tomograms at rest and after redistribution (REDIST). Persistent enhancement (arrow) develops in the inferolateral wall, corresponding to severe irreversible ^{201}Tl defect in same region (arrowhead in REDIST) image. The inferior wall also demonstrates substantial perfusion defect at rest but shows mild redistribution, indicating myocardial viability; CMR images in this area show lesser degree of enhancement than in area of irreversible injury.

Dobutamine stress CMR predicts lack of viable myocardium



Dobutamine stress CMR studies in a patient with three vessel disease and a prior anterior wall myocardial infarction. (Left upper panel) At rest, the short axis CMR during diastole shows that the diastolic wall thickness (DWT) of the anteroseptal wall is significantly reduced (arrows). (Left lower panel) The entire region shows a lack of systolic wall thickening (SWT). (Middle lower panel) During a dobutamine infusion, there was no measurable increase in SWT of the anteroseptal wall, indicating scar tissue. (Right upper and lower panel) Six months after successful bypass surgery (CABG), the reduction in DWT persisted (arrows, upper panel) there was no improvement in SWT.

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INTERSTITIAL LUNG DISEASE

Course Directors : Dr. Amit Patel / Dr. Nitesh Shah /
Dr. Kalpesh Panchal

Venue : CIMS Auditorium

July 02, 2017
(Sunday)

Program Overview:

Interstitial Lung Disease (ILD) is a very common day to day practice. It is observed that ILDs is managed in unorganized manner by doctors. Guidelines are also ambiguous. Objective of this symposium is to get doctors apprised of the latest guidelines in the management of Interstitial Lung Disease (ILD) and newer molecules.

Program Highlights:

Following points / topics will be discussed:

- Latest classification of ILD
- Different types of ILDs and their management
- Role of HRCT thorax in ILD

Registration Fees : ₹ 500/- (Non Refundable) **Spot Registration Fees** : ₹ 1,000/- (Non Refundable)

Certificate of attendance will be given at the end of the course.

MANAGEMENT OF HEART FAILURE PATIENTS - THE NEED OF THE HOUR

Course Directors : Dr. Milan Chag / Dr. Dhiren Shah / Dr. Ajay Naik /
Dr. Chintan Sheth / Dr. Tejas V. Patel / Dr. Manan Desai

Venue : CIMS Auditorium

July 09, 2017
(Sunday)

Program Overview:

Heart Failure Treatment is the need of hour. Day by day, heart failure patient's are increasing in daily practice. This program is intended to give case-based overview of treatment of any Heart Failure patients and the treatment modalities available.

Program Highlights:

- OPD based management of Heart Failure – When to refer for hospitalization
- New Drugs on the horizon for Heart Failure
- Devices available for Heart Failure Treatment
- Heart Transplant – It's a reality in India
- Chronic Management for Heart Failure patients
- Latest Trials in Medical Treatment for Heart Failure
- Latest in Surgical Treatment for Heart Failure

Registration Fees : ₹ 500/- (Non Refundable) **Spot Registration Fees** : ₹ 1,000/- (Non Refundable)

Certificate of attendance will be given at the end of the course.

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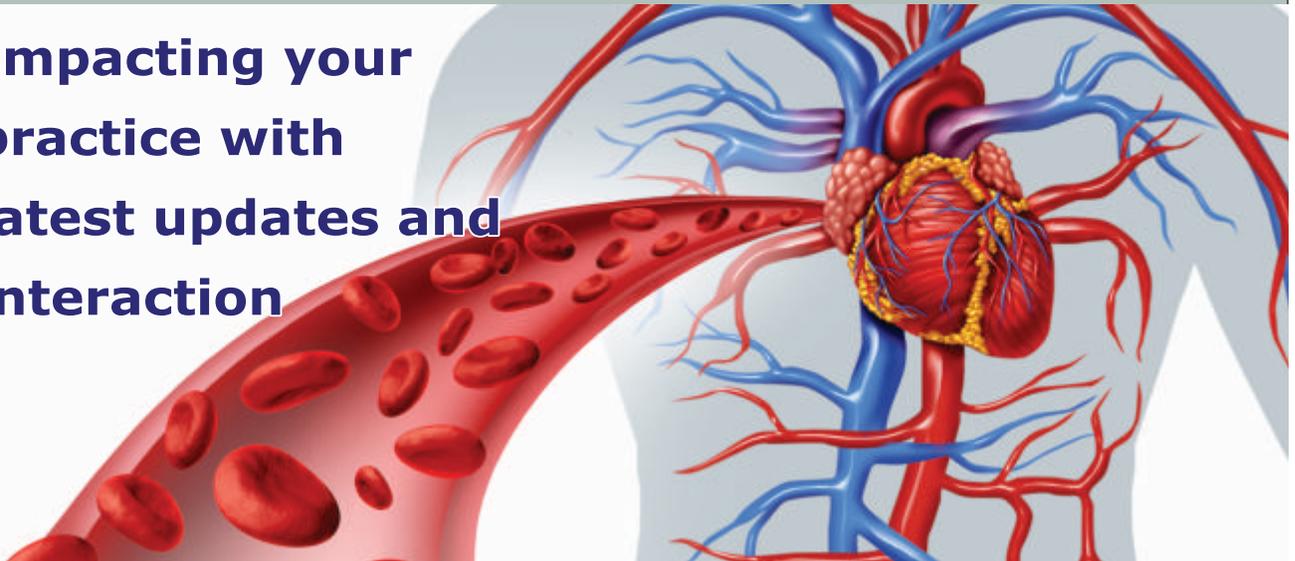
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* Certificate Course in ECHO Technology	1 Year + 6 Months Internship
* Certificate Course in Pulmonary Function Test (PFT) Technology	1 Year + 6 Months Internship
* Certificate Course in Radiology & Imaging Technology	1 Year + 6 Months Internship
* Certificate Course in Respiratory & Sleep Medicine Technology	1 Year + 6 Months Internship
* Certificate Course in Medical Laboratory Technology (MLT)	1 Year + 6 Months Internship

ELIGIBILITY : Minimum 10 + 2 (Science / Commerce)

Course Title	Course Duration
Assistant to Doctor Certificate Course	6 Months + 3 Months Internship
Central Sterile Supply Department (CSSD) Technician Certificate Course	6 Months + 3 Months Internship
Medical Records Management Certificate Course	6 Months + 3 Months Internship
* Certificate Course in Medical Transcriptionist (MT)	6 Months + 3 Months Internship
* Certificate Course in Operation Theater (OT) Technology	1 Year + 6 Months Internship
* Certificate Course in Optometry	1 Year + 6 Months Internship
Ward Secretary Certificate Course	1 Year + 6 Months Internship

ELIGIBILITY : BSc & Nursing Graduates

Course Title	Course Duration
Diploma in Infection Prevention & Control Nurse Course	3 Months + 6 Months Internship
Cardiothoracic (CT) – OT Nurse Certificate Course	6 Months + 6 Months Internship
General OT Nurse Certificate Course	6 Months + 6 Months Internship
Cardiothoracic ICU Nurse Certificate Course	6 Months + 6 Months Internship
Medical & Haemato Oncology Nurse Certificate Course	6 Months + 6 Months Internship
Obstetric & Gynaecology Care Nurse Certificate Course	6 Months + 6 Months Internship
Neonatal Nurse Certificate Course	6 Months + 6 Months Internship
Anaesthesia Nurse Certificate Course	1 Year + 6 Months Internship
* Certificate Course in Dialysis Technology	1 Year + 6 Months Internship

ELIGIBILITY : Minimum Science Graduates

Course Title	Course Duration
* Post Graduate Certificate Programme in Cath Lab Technology	1 Year + 6 Months Internship
* Post Graduate Certificate Programme in Hospital & Health Care Management	1 Year + 6 Months Internship

LAST DATE OF APPLICATION	COURSE COMMENCEMENT	VENUE
30 th June, 2017	1 st August, 2017	CIMS Hospital, Ahmedabad

For more details about course, contact : +91 9427148420



Email: clc@cimshospital.org
Website: www.cims.org/clc

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