Current Status of MRI in Cardiology – IMIC 2016

Cardiac MRI: Case Review

Matthias Gutberlet - MD, PhD, EBCR
University Hospital Leipzig - Germany

Department of Diagnostic and Interventional Radiology
Professorship for Cardiovascular Imaging

https://www.mrct-registry.org
Case I

55 y.o. female with triple vessel CAD disease

⇒ atypical chest pain since two weeks

Past Medical History:
Bypass grafts 8/2005 (LIMA-LAD, ACVB-RPLD)
DES in LAD 6/2005

Risk Factors:
HLP, art. hypertension

Treadmill Test: at 75W stopped due to hip pain
## Pretest Probability of Coronary Artery Disease (CAD) by Age, Sex, and Symptoms

*modified from Taylor AJ et al. (JACC 2010)*

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Case I

55 y.o. female with triple vessel CAD disease

LV-EF = 60 %

CINE-SSFP short axis
pharmacological stress test

**Dosage (Adenosine):**

140 μg/kgBW/min

Over 6 minutes

Starting Perfusion after 3

**Dobutamine**

Dosage (Dobutamine):

Stepwise increase:

(5) 10-40 μg/kgBW/3min till Target Heart Rate

0.85 x (220-Age), if so additional atropine!

Gutberlet et al. Der Radiologe 2013
Ischemic Cascade

- Hypoperfusion
- Transmural Subendocardial
- Metabolic Alteration
- Relaxation
- Contraction
- Dobutamine
- Filling Pressure
- EKG
- Angina

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Case I

55 y.o. female with triple vessel CAD disease

Adenosine Stress 140 μg/kg/min (0.05 mmol Gd-DTPA i.v.)
Case I

55 y.o. female with triple vessel CAD disease

Adenosine Stress 140 μg/kg/min (0.05 mmol Gd-DTPA i.v.)
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55 y.o. female with triple vessel CAD disease

Rest Perfusion Scan (0.05 mmol Gd-DTPA kg/BW i.v.)
Case I

55 y.o. female with triple vessel CAD disease

LGE Scan with 2D PSIR (10-20 minutes after 2 x 0.05 mmol/kg/BW Gd-DTPA i.v.)
Case I

55 y.o. female with triple vessel CAD disease

LGE Scan with 2D PSIR (10-20 minutes after 2 x 0.05 mmol/kg/BW Gd-DTPA i.v.)

No scar tissue in the hypoperfused Segment 5!
Case I

55 y.o. female with triple vessel CAD disease

Cardiac Cath of LAD & CX
Case I

55 y.o. female with triple vessel CAD disease

RAO - RCA

LAO – RCA
Case I

55 y.o. female with triple vessel CAD disease

CABG - RPLD
Case II

60 y.o. male with triple vessel CAD disease ➔ atypical chest pain

Adenosine Stress

Rest
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Case II

60 y.o. male with triple vessel CAD disease

⇒ atypical chest pain

Adenosine Stress

17-segment AHA model
Case II

60 y.o. male with triple vessel CAD disease
→ atypical chest pain

Adenosine Stress

LGE

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https://www.mrct-registry.org
Case III

70 y.o. male with atypical chest pain after MI

Slice thickness < 5.5 mm!

CINE - SSFP  Adenosine Stress  LGE
Case IV

47 y.o. male after MI with atypical chest pain

T1-TSE at 3T  
CINE-SSFP LA at 3T  
LGE at 3T

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Case IV

47 y.o. male after MI with atypical chest pain

Stress at 3T

LGE at 3T
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Case IV

47 y.o. male after MI with atypical chest pain

Stress at 3T  Rest at 3T  LGE at 3T
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European MR/CT Registry
European Society of Cardiac Radiology

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Save the Dates!

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European Society of Cardiac Radiology
Krakow / Poland

OCTOBER 20–22

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9. Deutsche Kardiologische Tage 2017
mit 10. Leipziger Symposium
Nichtinvasive Kardiovaskuläre Bildgebung
Kardiovaskuläre Bildgebung – ein interdisziplinärer Ansatz
23.–25. Februar 2017 LEIPZIG

www.kardiologische.de