

Meeting abstract

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2018 Delayed enhancement and edema sequences accurately identifies acute myocardial infarction

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Background

Cardiac magnetic resonance imaging (CMR) is frequently used to detect and quantify the size of myocardial infarction. Since no signal intensity difference of the enhanced region is observed between acute myocardial necrosis (AMN) and chronic myocardial necrosis (CMN), edema has been proposed for identification of myocardium at risk.

The aim of the current study was to analyze the diagnostic accuracy of CMR to differentiate between AMN and CMN using edema T2w sequences, hypoperfusion on first-pass enhancement (FPE), delayed enhancement (DE) and wall thinning on cine in patients within acute coronary syndrome (ACS).

Methods

We examined 10 prospective ACS patients with history of CMN (8 male, 2 female, mean age 59 ± 11 years) by CMR [1.5 Tesla Philips Gyroscan Philips Medical System, Best, Netherlands] within three days of acute event (NSTEMI).

We assessed left ventricular function by a steady-state free precession sequences, edema by a T2w black blood turbo spin echo fat suppressed sequence and first-pass perfusion by fast field echo T1w sequences during gadolinium injection. Visualization of myocardial necrosis was performed with inversion recovery turbo field echo T1 weighted

sequence acquired 10 minutes after gadolinium injection. Figure 1.

Results

See Table 1

Conclusion

T2w and DE-CMR enables accurate differentiation between AMN and CMN and territory identification of infarct-related artery. Edema indicates a recent infarction with a high successful of functional recovery, absence of transmural infarction identify viable myocardium.

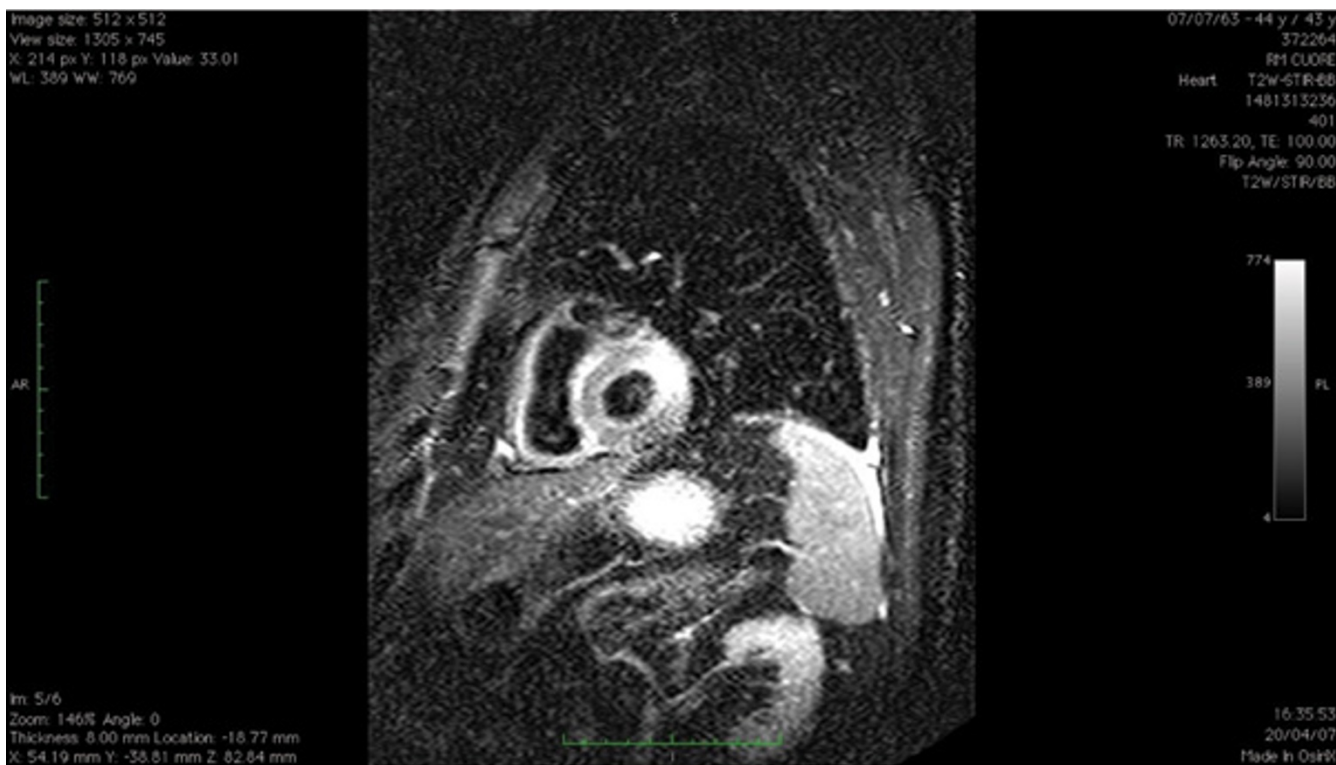


Figure 1

Table 1:

Parameter AMN	Sensitivity %	Specificity %	Positive predictive value %	Negative predictive value %
Edema	100	100	100	100
Hypoperfusion	67	50	67	50
Hypokinesia	78	100	100	33
DE	100	75	86	100

Parameter CMN	Sensitivity %	Specificity %	Positive predictive value %	Negative Predictive value %
Edema				
Hypoperfusion	80	50	75	100
Hypokinesia	100	100	100	100
DE	83	100	100	80

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