

Juncà G, et al. *Timing of cardiac magnetic resonance and diagnostic yield in patients with myocardial infarction with nonobstructive coronary arteries. Rev Esp Cardiol. 2023.*

## **SUPPLEMENTARY DATA**

### **Magnetic resonance protocol**

All participants underwent cardiovascular magnetic resonance (CMR) on a 1.5 Tesla scanner (Achieva, Philips, The Netherlands). All images were electrocardiogram-gated and acquired during end-expiration breath-holding. The scanning protocol included balanced steady-state free precession (bSSFP) cine images in long-axis (2-, 3- and 4-chamber views) and short-axis views covering the left ventricle (LV) from base to apex, T<sub>2</sub>-weighted short-tau inversion recovery (T<sub>2</sub>-STIR) images, and late gadolinium enhancement (LGE) imaging was performed matching the long- and short-axis cine views. Moreover, early gadolinium enhancement (EGE) in long-axis views was also performed.

Standard cine sequences were typically 8-mm thick with a 2-mm gap, echo time (ET) 1.49 ms; repetition time (RT) 30 to 45 ms; flip angle 60°, field of view (FOV) 310 to 400 mm, Matrix 256 x 256 with a voxel resolution of (1.1-1.4) x (1.1-1.4) x 8 mm and temporal resolution of 28 to 50 ms.

Edema was detected using T<sub>2</sub>-weighted short-tau inversion recovery (T<sub>2</sub>-STIR), which are a triple-IR black-blood turbo-spin echo pulse sequence (8-mm thick with a 2-mm gap, ET 70 ± 5 msec; RT 2 x RR interval; inversion time (IT) 160 to 180 msec; flip angle 90°, FOV 330 to 360 mm and pixel size 0.9 x 0.9 mm<sup>2</sup>).

EGE images were acquired 2 to 3 minutes after of intravenous administration of gadolinium-based contrast agent gadobutrol (Gadovist, Bayer, Germany) (0.15 mmol/kg) in 3 long-axis views with an inversion recovery segmented gradient echo pulse sequence with a fixed IT of 440 msec. Typical parameters were 10 mm slice thickness, ET 3 msec; RT 5 to 10 msec; Flip angle 25°, FOV 350 to 380 x 350 to 380 mm; Matrix 240 x 210; spatial resolution 1 x 1 x 10 mm. LGE images were acquired 8 to 10 minutes after the same bolus injection of gadobutrol with an inversion recovery-prepared 2-dimensional segmented gradient echo pulse sequence matching standard long-axis and short-axis views, adjusting the IT for correct myocardial nulling. Typical sequence parameters were 8-mm slice

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thickness; ET 3 ms; RT 5 to 10 ms; Flip angle 25°; FOV 300 to 380 x 300 mm; Matrix 256 x 256; Spatial resolution 1 x 1 x 8 mm; IT 260 to 320 ms.

Right ventricular (RV) and LV end-systolic and end-diastolic volumes, LV mass and RV and LV ejection fraction were measured using commercially available software (Portal IntelliSpace software; Philips Healthcare, The Netherlands). Edema was visually detected as high intensity myocardial segments. The presence of hyperemia (hyperenhancement) or thrombus (hypo-enhancement) in EGE sequences was visually assessed. The presence or absence of LGE (or hyperenhancement) was visually assessed, defined as the presence (or absence) of myocardial high signal intensity in both the short-axis and corresponding long-axis views.

Three cardiologists were involved in CMR acquisition and analysis. Two of them had the European Association of Cardiovascular Imaging (EACVI) level 3 CMR certification and the third one had EACVI level 2 CMR certification. In the vast majority of cases only 1 observer was involved in the analysis and the final diagnosis. However, if there were doubts, a second cardiologist evaluated the images and reached an agreement for the final diagnosis.