Cine MRI assessment of extensive late no reflow in severe ischemic cardiomyopathy

Mise en évidence par ciné IRM d’un important no reflow tardif dans une cardiopathie ischémique sévère

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No reflow is usually assessed by first-pass analysis of gadolinium kinetic. Its persistence in cine magnetic resonance imaging (MRI) sequences performed after the gadolinium injection predicts a severe microvascular obstruction and non-viable myocardium, and is associated with a poor prognosis.

A 61-year-old man was hospitalized for acute heart failure occurring eight days after an inaugural and prolonged chest pain. An electrocardiogram revealed a complete left bundle branch block and the troponin I level was elevated (20 ng/mL, N < 0.1). Coronary angiography, performed at admission, showed occlusions of the proximal left anterior descending and right coronary arteries. Medical treatment was adopted and cardiac MRI (3-T Achieva, Philips Medical Systems, Eindhoven, Netherlands) was performed to determine the viability in territories supplied by these arteries:

- cine MRI pregadolinium (Fig. 1) showed circumferential akinesia, excluding the lateral territory (left ventricular ejection fraction 17%);
- first-pass dynamic perfusion imaging (Fig. 2) revealed no reflow in the same territories;
- cine MRI performed 5 minutes after the gadolinium injection (Fig. 3) confirmed, in a demonstrative way, the no reflow and microvascular obstruction;
- the search for delayed contrast enhancement, 10 minutes after the gadolinium injection (Dotarem®, 30 mL) (Fig. 4), showed a transmural hyperfixation, excluding the
Figure 1. Left ventricular regional contractility assessment by cine MRI: circumferential akinesia, excluding the lateral territory.

Figure 2. Short-axis first-pass dynamic perfusion imaging.

Figure 3. Cine MRI 5 minutes after the gadolinium injection in the (A) long axis, (B) short axis and (C) four-chamber views.
medioparietal area. This pattern assesses the lack of myocardium viability.

Because of the absence of viability, medical treatment was continued.

Appendix A. Supplementary data

Supplementary data associated with this article can be found, in the online version, at doi:10.1016/j.acvd.2008.08.001.