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What is the place of the Minimalist Immediate Mechanical Intervention (MIMI) for primary angioplasty in 2012? A "real-life" mono-center study

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Objectives: Slow flow, no reflow and distal embolization often occur during angioplasty in STEMI, compromising optimal myocardial reperfusion. Minimalist Immediate Mechanical Intervention's (MIMI) is a strategy based on recanalization in emergency and postponed stenting. The present study aimed at assessing the safety and feasibility of MIMI in patients with ST segment elevation myocardial infarction (STEMI) compared to "immediate stenting" strategy.

Methods: 98 consecutive patients referred for primary angioplasty were included. Physicians were free to select the reperfusion strategy among MIMI or immediate stenting but had to justify their choice. In the MIMI subgroup a second coronary angiography was planned in a delay >24h.

Results: 40 patients underwent "MIMI" and 58 "immediate stenting" strategy. MIMI strategy was based on thrombus management, including mechanical management by thromboaspiration (33 patients 82.5%) and pharmacological management by using AntiGpIIbIIIa (23 patients 62.16%). The most important factors for selecting this strategy, in the presence of a TIMI 3 flow were: regression of chest pain, regression of ST segment elevation and presence of an important thrombotic mass. This strategy could be achieved with a low complication rate compared to direct stenting. Among MIMI's patients, 35 underwent a coronary angiogram's control after a delay of 1 to 131 days. Seven of these patients were medically treated because of a non-significant stenosis.

Conclusions: This mono-centric study confirms the feasibility and the safety of MIMI in our hands. This strategy has additional advantages, allowing for surgery if required or medical treatment when no significant stenosis remained. This study gives a hint to define the place of the MIMI strategy in the management of STEMI.

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Feasibility of optical coherence tomography guided angioplasty during acute coronary syndrome (the OTOCLAV study)

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Purpose: Optical coherence tomography (OCT) allows precise analysis of the unstable coronary artery lesions characteristics. We investigated the feasibility and optimal timing of OCT guided percutaneous coronary intervention (PCI) for acute coronary syndromes (ACS) treatment.

Methods: This multicenter registry included patients with ACS and a large thrombus burden on initial coronary angiography. All patients treated by successful manual thrombectomy were then explored by immediate OCT (day 0, group 1) or postponed for subsequent analysis, at the discretion of the operator. The deferred OCT procedures were performed between day 5 to 7 (delayed procedure/ group 2) or 8 to 30 (late procedure /group 3) following initial coronary angiography. The decision of stenting was based on the presence of a residual culprit stenosis with a minimal lumen area (MLA) <4 mm^2.

Results: A total of 93 patients (n=31 in each group) were included (mean age: 53.3±1.4 years, 78% male, 83% STEMI). OCT was feasible in all cases, with no complication (thrombus migration, coronary artery dissection or perforation).

A thrombus adherent to the culprit lesion was identified in 65% of the cases. This frequency was significantly lower in late OCT group vs. immediate OCT group (32% vs. 74%, p<0.01). Moreover, the culprit lesion stenosis decreased over time, as witnessed by the higher MLA in group 3 compared to group 1 (2.42±0.3 mm^2 vs. 5.21±0.76 mm^2, p<0.01).

Patients were treated by coronary artery stenting in 61% of the cases. The stenting rate was significantly lower in patients with late OCT exploration compared to the ones with immediate OCT analysis (42% vs. 77%, p<0.001). A total of n=3 major adverse cardiovascular events (death+non fatal MI+ non fatal stroke+ need for revascularization) were observed during follow-up.

Conclusion: OCT guided PCI for treatment of patients with ACS is feasible, safe and prevents unnecessary stenting procedures. Although our data suggest that a deferred analysis could be a relevant approach, the optimal timing for TD-OCT procedure following ACS has to be confirmed in larger studies

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Impact of successful thrombus retrieval during primary percutaneous coronary intervention with thrombus aspiration on the infarct size and microvascular obstruction: Insight from contrast-enhanced mag

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Background: Thromboaspiration (TA) during primary percutaneous intervention (PPCI) is effective in opening the infarct-related artery in patients with ST-segment elevation myocardial infarction (STEMI), leading to better reperfusion and improved outcome. However, the effect of positive macroscopic efficiency of TA remains unknown. We aimed to evaluate the impact of positive thrombus retrieval during PPCI with manual TA on infarct size (IS) and microvascular obstruction (MVO) as assessed by contrast-enhanced magnetic resonance imaging (CE-MRI) in a subset of patients with STEMI.

Methods: Inclusion criteria were patients aged <75 years, with first STEMI referred for PPCI within 12 hours of onset of symptoms, infarct-related artery ≥2.5 mm in diameter, thrombus score ≥3 and no prior history of coronary disease. All patients underwent TA before stenting and were categorized according to positive or negative TA. Clinical and procedural characteristics of study population were recorded and CE-MRI was performed at 5 days and 6-months to evaluate MVO and IS.

Results: 88 patients were enrolled, mean age 55±10 years; 43.1% in the positive TA group. Main results are presented in the table. Clinical and procedural characteristics (90-min total ischemic time, ST-segment resolution, post-procedural TIMI flow grade and post-stenting myocardial blush grade, and peak troponin) did not differ significantly between groups. Independent predictors of final IS were: positive TA (OR 0.34, 95%CI 0.03-0.71), MVO (OR 1.75, 95%CI 1.28-0.71) and IS at 5 days (OR 2.06, 95%CI 1.87-3.32).

Conclusion: Positive thrombus retrieval during primary PPCI with manual TA in STEMI reduces MVO and in the acute phase and at 6 months and represents a powerful predictor of final infarct size.

Table – Main results

	Negative TA (N=50)	Positive TA (N+38)	p
MVO (%)	7.6±5.1	3.8±3.1	0.003
IS in the acute phase (%)	28.2±20.8	14.9±8.7	0.004
Final IS at 6 months (%)	22.3±19.3	12.0±8.3	0.002

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