Reperfusion strategy in renal dysfunction patients presenting with STEMI

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Background: Patients with renal insufficiency experience worse prognosis after STEMI.

Aim of the study: To compare primary PCI (PPCI) and thrombolysis results as well as in-hospital mortality after successful reperfusion between patients with or without renal dysfunction (RD).

Methods: From January 1995 to October 2014, 1588 patients admitted for STEMI were enrolled in our registry. Two reperfusion groups were identified: PPCI (315 patients) and thrombolysis (379 patients). We compared the group of RD patients (RD+) and normal renal function patients (RD-). Our main endpoints were: (1) The success of reperfusion and (2) the in-hospital mortality.

Results: Ninety patients (13%) had RD, 50% of which underwent PPCI, and 50% received thrombolytics. In the PPCI group, although TIMI flow was similar before angioplasty (p=0.82), TIMI III flow restoration was significantly lower in the RD+ group (78.6% vs 91.8%, p=0.013).

Suboptimal result was also higher in the RD+ group (13.6% vs 2.7%, p=0.001), but ST regression after TIMI III achievement was similar in the 2 groups (p=0.43) reflecting probably no microvascular damage.

In the thrombolysis group, successful reperfusion was also significantly lower when RD exists (58% vs 74%, p=0.03), but RD was not an independent predictor of thrombolysis failure. RD was an independent mortality predictor either after PPCI or thrombolysis (respectively p=0.014, OR=4.39 and p=0.006, OR=4.93). After successful reperfusion, in-hospital mortality was higher among RD+ patients in the PPCI group (33.3% vs 4.3%, p=0.001), whereas it was similar after successful thrombolysis (p=0.42).

In-hospital mortality was higher in RD+ patients when mechanically reperfused (40% vs 18.2%, p=0.024), whereas no significant difference was found among RD- patients (p=.75).

Conclusion: RD reduces PPCI success.

Although RD was an independent mortality predictor regardless of the reperfusion strategy, prognosis was worse in RD group only after successful PPCI.

The author hereby declares no conflict of interest

Prognostic impact of interventional approach in non-ST segment elevation acute coronary syndrome in very elderly Algerian patients

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Introduction and objectives: In moderate or high risk non-ST segment elevation acute coronary syndrome, clinical practice guidelines recommend a coronary angiography with intent to revascularize. However, evidence to support this recommendation in very elderly patients is poor.

Methods: All patients over 85 years old (military hospitals of Algeria) admitted between 2006 and 2014 with a diagnosis of non-ST segment elevation acute coronary syndrome were retrospectively included. Using a propensity score, patients undergoing the interventional approach and those undergoing conservative management were matched and compared for survival and survival without ischemic events.

Results: We included 167 consecutive patients with a mean age of 88 years (range: 85 to 101). Those in the interventional approach group (n=87) were younger, with a higher proportion of males and less comorbidity, less cognitive impairment and lower troponin I levels compared with patients in the conservative management group (n=100).

We matched 60 patients from the interventional approach group and 60 from the conservative management group using propensity score. In the matched patients, the interventional approach group exhibited better survival (log rank 4.24, P=0.039) and better survival free of ischemic events (log rank 8.63, P=0.003) at the 3-year follow-up. In the whole population, adjusted for propensity score quintiles, the interventional approach group had lower mortality (hazard ratio 0.52; 95% confidence interval: 0.32-0.85) and a better survival free of ischemic events (hazard ratio 0.48; 95% confidence interval: 0.32-0.74).

Conclusions: Nearly all very elderly patients admitted with non-ST segment elevation acute coronary syndrome were of moderate or high risk. In these patients, the interventional approach was associated with overall better survival and better survival free of ischemic events.

The author hereby declares no conflict of interest

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FFR Gray zone and clinical outcome

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Aims: Fractional flow reserve (FFR) invasively assesses the ischemic potential of coronary stenosis. FFR value of 0.75 has been referred to the ischemic FFR threshold validated against non-invasive functional testing; while an FFR value of 0.80 has guided clinical decision making in multicenter clinical trials. Revascularization in case of FFR values in the gray zone between 0.75-0.80 is still debatable. We investigated the clinical outcome of patients with an isolated stenosis and FFR value in the gray zone.

Methods: From 1997 to 2013, we retrospectively included all patients with single segment disease at coronary angiography and FFR between 0.70-0.85. We defined the following FFR groups: a) 0.70-0.75; b) 0.76-0.80 (gray zone);
c) 0.81-0.85: Study endpoints was death, myocardial infarction and revascularization up to 5 years follow up.

Results Out of 17380 patients undergoing FFR measurement: 2781 (16%) patients presented lesions with FFR in the gray zone; 1459 were included: 449 treated with percutaneous revascularization (PCI) and 1010 with medical therapy (MT). Clinical characteristics were similar among patients treated with PCI or MT, with exception of more frequent male gender in PCI group (p=0.002). Diameter stenosis and FFR value were lower in PCI group (p<0.0001). At 5-years, compared to PCI group, MACE was more frequent in MT group with FFR 0.70-0.75 (11 [21%] vs. 53 [12%], p=0.026), while no difference was observed in MT groups with FFR 0.75-0.80 and 0.81-0.85. Within the MT group, a progressive increase in MACE was observed in 3 FFR strata (FFR, 0.81-0.85: 58 [8%] vs. FFR, 0.76-0.80: 35 [13%] vs. FFR, 0.70-0.75: n=11 [21%], p=0.0001).

Conclusions Patients with stenosis located in proximal-mid coronary segments and FFR in the gray zone of 0.75-0.80 demonstrate a MACE rate that is still higher than observed in patients above the 0.80 clinical threshold. These data suggest that FFR 0.80 is valid to guide clinical decision making.

Impact of the FAME2 study on routine use of Fractional Flow Reserve (FFR). Results from 2454 FFR between 1999 and 2015

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Rationale and aim Introduced in early 2000, Fractional Flow Reserve (FFR) was initially validated for deferring percutaneous coronary intervention (PCI) when >0.80. After September 2012, FAME2 suggested performing PCI when FFR <0.80. The impact of the two indications on routine practice is poorly documented.

Methods Rate and indications of FFR use and decision for PCI was assessed monthly between April 1999 and Sept 2014 in a single center.

We calculated monthly the rates of FFR, coronary angiography (CA) and PCI.

Cumulative curves for CA, PCI and FFR we determined according to time elapsed since 1999.

Results In a single center, 26629 CA, 12270 PCI and 2454 FFR were performed between 1999 and 2014. Monthly rates were 182 CA, 77 PCI and 14 FFR. The cumulative curves showed that the rates of CA and PCI were stable, with a near-perfect linear correlation for each time interval. Conversely, there was a change in the rate of FFR, the best spline point for the FFR use was found in September 2012. From 1999 to Sept 2012, the rate of FFR was 14/month and increased to 21/month after Sept 2012. There was no significant difference in the patient characteristics, indications for CA or center team or equipment between the 2 periods, but the rate of FFR/CA increased from 7.3 to 12%.

Conclusion Physicians performed more FFR after Sept 2012. This increase in routine use of FFR was only explained by the additional indication for FFR resulting from the publication of the FAME2 study.

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