Rheolytic Thrombectomy for the Treatment of Acute Myocardial Infarction in Patients With Angiographic Large Thrombus Burden: One-Year Results of the VeGAS 2 Acute Myocardial Infarction Registry


Background. The treatment of acute myocardial infarction (MI), in patients (pts) with angiographic evidence of large thrombus burden is difficult. There are scarce data in the literature addressing the optimal management of this high-risk patient population. Methods and Results. This prospective study enrolled 107 pts (age ≥ 61 ± 12 years, 71% males) presenting with acute ST elevation MI within 24 hours of symptoms onset and angiographic evidence of thrombus. The culprit lesion was located in a native coronary artery in 74.5%, and in a bypass graft in 25.5%. Abciximab was used in 42.1% of the pts. Thrombus area decreased from 97 ± 67 mm² at baseline to 17 ± 22 mm² post thrombectomy, to 3 ± 12 mm² after final treatment. TIMI 3 coronary flow was obtained in 78% after thrombectomy and 87% after final treatment. Procedure success (residual diameter stenosis ≤ 50%) and TIMI 3 flow post-procedural angiographic analysis were independently associated with higher 1-year mortality (odds ratio 1.52; 95% CI: 1.18 to 1.95; p = 0.007) and ventricular arrhythmia (p = 0.014) mostly explained augmented in-hospital mortality in IFG group. Data from the multivariate analysis showed that increased cardiogenic shock (p = 0.003) and ventricular arrhythmia (15 vs 9%, p < 0.001) was observed in IFG group, as compared to NFG group. In-hospital mortality (8 vs 3%, p = 0.001), 1-year mortality (14 vs 3%, p = 0.001) and non-fatalcardiovascular events (145 vs 7%, p < 0.001) were significantly higher in IFG group when compared to NFG group (8 vs 145 (15%) IFG and 473 (47%) NFG). Age, cardiovascular risk factors, renal function and diabetes were independent founding factors (age, sex, anterior location, LVEF, CK, reperfusion, multivessel disease and cardiogenic shock) was an independent predictive factor for cardiogenic shock.

Thrombus Aspiration for the Treatment of No-Reflow PhenomenonComplicating Primary Angioplasty for Acute Myocardial Infarction

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Background: Primary angioplasty (PCI) for acute myocardial infarction (AMI) can be complicated by no-reflow or slow-flow phenomenon in nearly 20% of patients. It is not clear which is the best strategy to use when such phenomenon occurs. Intracoronary adenosine and GP IIb/IIIa antagonists have been suggested but their efficacy is not well established. In this study we report our experience with the use of thrombus aspiration as an approach to the management of no-reflow phenomenon complicating primary PCI for AMI.

Methods and Results. Among 239 consecutive primary PCI for AMI performed in our Center, 46 (19%) were complicated by no-reflow or slow-flow phenomenon. All pts received intracoronary GP IIb/IIIa antagonist (abciximab) soon after culprit lesion was crossed by the guide wire. No-reflow or slow-flow phenomenon occurred soon after balloon inflation or stent deployment at the site of target lesion. Intracoronary adenosine (45 to 60 μg) was given in all 46 pts but no persistent improvement was observed. Thus, thrombus aspiration by Rescue system (Boston Scientific) or by Diver CE catheter (Inovatec srl) was attempted in all 46 pts. At least 3 passages of the aspiration catheter along the culprit vessel were performed in all pts.

Results: Blood flow was restored in 38 patients (82%) with TIMI III flow. In 20 pts (52.6%) thrombotic material was aspirated from the culprit vessel as was confirmed by histological analysis. In 6 pts persistent TIMI 3 flow was observed after repeated aspiration. No material was aspirated from the culprit vessel in these pts. In 2 pts thrombus aspiration was unsuccessful (persistent no-reflow). No procedural complications device-related occurred. All pts were discharged within 7 days following the procedure. Clinical follow-up was available in all patients. All were event-free at 7 ± 3 months.

Conclusions: These data suggest that no-reflow phenomenon during primary PCI in AMI pts can be related to massive microembolization of thrombus fragments which might also increase blood viscosity contributing to no-reflow phenomenon. Aspiration of thrombotic debris and blood from the treated vessel seems to be an effective approach to restore blood flow and confers an excellent clinical outcome.

Increased In-Hospital Mortality After Acute Myocardial Infarction in Patients With Impaired Fasting Glucose

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Objectives: In-hospital mortality after acute MI has not yet been evaluated in patients belonging to the new category of Impaired Fasting Glucose level (IFG), as defined by the American Diabetes Association. Methods: Between 1st January 2001 and 31st July 2003, all patients hospitalized with acute MI in one region of eastern France participating to RICO survey were included in the study. Fasting blood glucose was measured <3 days after admission. Patients were grouped based on FG concentration: Diabetes Mellitus (DM) (FG > 7 mmol/L or clinical history of DM); IGF (FG 6.1 to 7 mmol/L); NFG (normal FG < 6.1 mmol/L).

Results: Among the 999 included in the study, 381 (38%) had DM, 145 (15%) IGF and 473 (47%) NFG. Age, cardiovascular risk factors, renal function and MI characteristics were not different between IGF and NFG patients. There was a 2 fold increase in in-hospital mortality in IGF group when compared to normal glucose group (8 vs 4%, p < 0.001). A significant increase in cardiogenic shock (12 vs 6%, p < 0.001) and in ventricular arrhythmia (15 vs 9%, p < 0.001) was observed in IGF group, as compared to NFG group. Data from the multivariate analysis showed that increased cardiogenic shock (p < 0.001) and ventricular arrhythmia (p = 0.014) mostly explained augmented in-hospital mortality in patients with IFG. In our population, IFG, after adjustment for potential confounding factors (age, sex, anterior location, LVEF, CK, reperfusion, multivessel disease and cardiogenic shock), was an independent predictive factor for cardiogenic shock.