

ATHENS CARDIOLOGY UPDATE 2010

Staged Percutaneous Coronary Intervention (PCI) for Multivessel STEMI Patients?

Nikolaos D. Papamichael, MD, Lampros K. Michalis, MD

Ioannina University Hospital, Ioannina

Primary PCI is the treatment of choice for patients with STEMI since it results in greater patency of the infarct-related artery (IRA) and lower rates of re-infarction, stroke and death when compared with fibrinolysis alone¹. Multivessel disease (MVD) occurs in 40% to 65% of patients with STEMI². Is it possible for an aggressive multivessel percutaneous revascularization strategy may afford advantages in greater myocardial salvage and avoidance of staged procedures, with subsequent savings in compounded procedural risks.

Contemporary studies have produced controversial results. Previous retrospective non-randomized trials have shown that patients with STEMI who have undergone multivessel PCI have increased rates of re-infarction, need for revascularization² and stroke³. On the contrary a retrospective non-randomized trial and prospective randomized trial (with a small number of participants) have shown that patients with STEMI and multivessel PCI had similar incidence of death, re-infarction or target-lesion revascularization (TLR) compared with those with primary PCI of the IRA alone during hospital stay and at 12 and 36 months^{4,5}. Furthermore, data of a large New York registry have shown that patients with STEMI that had multivessel PCI had significantly lower rates of MACE during hospital stay⁶. Recently a prospective study has compared different revascularization strategies in patients presenting with STEMI: a. culprit vessel PCI alone, b. revascularization of culprit plus additional vessels at the time of primary PCI, c. staging a second PCI during the initial hospital stay, d. staging a second PCI within 60 days. Patients having culprit vessel PCI alone had lower mortality rates compared with those who had revascularization of culprit plus additional vessels at the time of primary PCI. The same study has shown that had a staged PCI within 60 days is the best revascularization strategy⁷. There is no doubt that total revascularization is the treatment of choice for patients with STEMI and cardiogenic shock. Data from SHOCK trial have shown that 30-day and 6-month mortality is significantly lower in patients that had complete revascularization compared to those that received medical treatment only⁸.

It is evident that there are no sufficient and convincing evidence that support multivessel PCI in the setting of a STEMI. Despite the fact that staged PCI during hospital stay is feasible it does not offer any substantial benefit. It seems that staged PCI within 60 days of index event is the best revascularization strategy for patients with MVD and STEMI. On the other hand total revascularization is the treatment of choice for patients with STEMI and cardiogenic shock.

KEY WORDS: *staged percutaneous coronary intervention (PCI); Multivessel diseases STEMI*

Correspondence to:
Lampros Michalis, MD,
e-mail: lmichalis@cc.voi.gr

STAGED PERCUTANEOUS CORONARY INTERVENTION (PCI) FOR MULTIVESSEL STEMI PATIENTS?

REFERENCES

1. Grines CL, Browne KF, Marco J, et al. A comparison of immediate angioplasty with thrombolytic therapy for acute myocardial infarction. The Primary Angioplasty in Myocardial Infarction Study Group. *N Engl J Med* 1993; 328(10):673-9.
2. Corpus RA, House JA, Marso SP, et al. Multivessel percutaneous coronary intervention in patients with multivessel disease and acute myocardial infarction. *Am Heart J* 2004; 148(3):493-500.
3. Roe MT, Cura FA, Joski PS, et al. Initial experience with multivessel percutaneous coronary intervention during mechanical reperfusion for acute myocardial infarction. *Am J Cardiol* 2001; 88(2):170-3, A6.
4. Chen LY, Lennon RJ, Grantham JA, et al. In-hospital and long-term outcomes of multivessel percutaneous coronary revascularization after acute myocardial infarction. *Am J Cardiol* 2005; 95(3):349-54.
5. Di Mario C, Mara S, Flavio A, et al. Single vs multivessel treatment during primary angioplasty: results of the multicentre randomised HEpacoat for cuLPrit or multivessel stenting for Acute Myocardial Infarction (HELP AMI) Study. *Int J Cardiovasc Intervent* 2004; 6(3-4):128-33.
6. Kong JA, Chou ET, Minutello RM, Wong SC, Hong MK. Safety of single versus multi-vessel angioplasty for patients with acute myocardial infarction and multi-vessel coronary artery disease: report from the New York State Angioplasty Registry. *Coron Artery Dis* 2006; 17(1):71-5.
7. Hannan EL, Samadashvili Z, Walford G, et al. Culprit vessel percutaneous coronary intervention versus multivessel and staged percutaneous coronary intervention for ST-segment elevation myocardial infarction patients with multivessel disease. *JACC Cardiovasc Interv*; 3(1):22-31.
8. Hochman JS, Sleeper LA, Webb JG, et al. Early revascularization in acute myocardial infarction complicated by cardiogenic shock. SHOCK Investigators. Should We Emergently Revascularize Occluded Coronaries for Cardiogenic Shock. *N Engl J Med* 1999; 341(9):625-34.