Emergency percutaneous coronary interventions for unprotected left main stenoses: immediate and long term follow up


Methods
Emergency PCI of the unprotected LMCA was performed in 35 cases, representing 0.2% of the 17,683 patients who underwent PCI at our centre between January 1990 and July 2001. Twenty six of the study patients (74.3%) were being treated in the setting of acute myocardial infarction (AMI). In the nine other patients (25.7%) the procedure was performed as an emergency treatment for dissection that occurred during coronary angiography. Patient characteristics and angiographic data are shown in table 1. The magnitude of STT elevation in lead AVR is also shown in table 1. Twenty four patients (68.6%) had ST segment elevation in lead AVR. Patients with an LMCA occlusion due to complicated coronary angiography did not have a pretreatment ECG.

Results
Twenty patients (57.1%) had a total occlusion of the LMCA. A stent was used in 25 patients (71.4%); in one case a cutting balloon was used and in one further case a rotablator was applied. In 20 patients (57.1%) an intra-aortic balloon pump was used. Cardiopulmonary resuscitation was needed in seven patients (20%). Six patients (17.1%) were transferred to the operating room for emergency coronary bypass surgery immediately after orthograde flow in the LMCA was obtained.

Discussion
Generally, PCI is a safe and effective treatment for most significant coronary stenoses. An exception is PCI of the LMCA, which is not practised routinely, as balloon induced dissection of the LMCA may result in an immediately life threatening condition. In contrast, CABG is a safe alternative. However, emergency CABG is logistically not always feasible; even when the operating theatre and the surgical team are available, the preparations for cardiac surgery may last longer than the haemodynamic circumstances of the patient allows. In contrast, catheter interventions do not require significant preparations. Once the patient has arrived in the catheterisation laboratory, procedures may be carried out within minutes. Emergency catheter interventions may result in an...

Abbreviations: AMI, acute myocardial infarction; CABG, coronary artery bypass grafting; LMCA, left main coronary artery; PCI, percutaneous coronary intervention.
immediate restoration of haemodynamics, thus potentially saving lives.

Since PCI has been accepted as a standard treatment for AMI,1,2 experience with emergency PCI for the unprotected LMCA is growing.3–5 Most publications on this matter concern small subgroups from larger cohorts of patients undergoing PCI. De Luca (from the Zylstra group) so far describes the largest group;2 24 patients underwent PCI for LMCA obstruction in the setting of AMI. Fourteen of these patients (58%) died either in the catheterisation laboratory or during the initial hospitalisation.

In our study the time delay between onset of symptoms and time of restoration of coronary blood flow appears to be the only strong predictor of mortality in a univariate analysis. Each quarter of delay results in a 30% increase of the risk of death.

Our study concerns a group of 35 patients with LMCA stenosis or occlusion, presenting at our high volume intervention centre during a 10 year time period. It has never been a policy at our centre to perform PCI of the LMCA routinely, but the immediately life threatening condition of acute closure of the LMCA forced us to carry out this life saving procedure. We strongly believe that scarcely any of these 35 patients would have survived without the catheter intervention.

Applicable literature on the prognosis of untreated acute LMCA obstruction is lacking but in all studies on PCI under this condition, treatment failure results in low survival rates.

Fifteen patients died either during the procedure or within the first week thereafter. Survivors had an excellent prognosis with not one single patient dying during the 10 year follow up period. This remarkable finding is consistent with the only larger study published so far.7 Not surprisingly, a significant proportion (10%) of the survivors underwent additional revascularisations at a later stage, either by PCI or CABG.

In conclusion, the lives of 59% of the study population were saved by the procedure.

Figure 1 Kaplan-Meier survival curve: cardiac death.

REFERENCES

Authors’ affiliations
B R G Brueren, Department of Cardiology, Catharina Ziekenhuis, Eindhoven, The Netherlands
J M P G Ernst, M J Suttorp, J M ten Berg, B J W M Rensing, E G Mast, E T Bal, A J Six, H W M Plokker, Department of Cardiology, St Antonius Hospital, Nieuwegein, The Netherlands

Correspondence to: B R G Brueren, Department of Cardiology, Catharina Ziekenhuis, Michelangeloalaan 2, Postbus 1350, 5602 ZA, The Netherlands; gui.br even@cz.e.nl

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G Mönnig, K Wasmer, L Eckardt
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(Heart 2004;90:e58) www.heartjnl.com/cgi/content/full/90/9/e58

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A Varghese, D J Pennell
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(Heart 2004;90:e59) www.heartjnl.com/cgi/content/full/90/9/e59
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