

Editors

E.E. van der Wall <i>chairman</i>	Leiden
P.A.F.M. Doevendans	Utrecht
M.J.M. Cramer	Utrecht
A.A.M. Wilde	Amsterdam
F. Zijlstra	Groningen

Editorial Board

J.J. Bax	Leiden
F.W.H.M. Bär	Maastricht
M.J. de Boer	Zwolle
H.A. Bosker	Arnhem
R.B.A. van den Brink	Amsterdam
A.J.M. Cleophas	Dordrecht
H.J.G.M. Crijns	Maastricht
P.J. de Feyter	Rotterdam
I.C. van Gelder	Groningen
W.H. van Gilst	Groningen
R.N.W. Hauer	Utrecht
N.M. van Hemel	Nieuwegein
T.E.H. Hooghoudt	Nijmegen
T. Jaarsma	Groningen
W. Jaarsma	Utrecht
J.W. Jukema	Nieuwegein
J.L.M. Jordaens	Rotterdam
J.H. Kirkels	Utrecht
A. van der Laarse	Leiden
B.M.J. Mulder	Amsterdam
M.G. Niemeyer	Groningen
L. Noyez	Nijmegen
T. Op 't Hof	Utrecht
A.J.M. Oude Ophuis	Nijmegen
R.J.G. Peters	Amsterdam
Y.M. Pinto	Maastricht
J.H.C. Reiber	Leiden
A.C. van Rossum	Amsterdam
J.J. Schipperheyne	Leiden
P.W.J.C. Serruys	Rotterdam
M.L. Simoons	Rotterdam
J.L.R.M. Smeets	Maastricht
J.G.P. Tijssen	Amsterdam
E.T. van de Velden	Leiden
D.J. van Veldhuisen	Groningen
F.W.A. Verheugt	Nijmegen
C.A. Visser	Amsterdam
H.W. Vliegen	Leiden
A.A. Voors	Groningen
E.F.D. Wever	Nieuwegein
R.J. de Winter	Amsterdam
P.A. van Zwieten	Amsterdam
B. de Blij	NHS
L. Otterspoor	Junior Chamber
H.R. Michels	CVOI

International Advisory Board

A. Battler	Tel Aviv, Israel
L. Field	Indianapolis, US
B.W. Frye	Rochester, US
A. Moss	Rochester, US
U.P. Sechtem	Stuttgart, Germany
T. Tak	Fort Worth, US
S.R. Underwood	London, UK
F.J. Wackers	New Haven, US

Optimalisation of preclinical, clinical and chronic care for patients with acute MI: MISSION! possible

Recent guidelines regarding the management of patients with acute myocardial infarction (AMI) advocate aggressive reperfusion strategies and administration of aspirin, β -blockers, lipid-lowering drugs and angiotensin-converting enzyme inhibitors during follow-up. Furthermore, programmes to interact with lifestyle issues (such as smoking, diet and exercise) should be implemented.^{1,2} Several studies have shown that improved adherence to guidelines reduces the morbidity and mortality of AMI patients.³⁻⁵ However the gap between evidence-based medicine and practice is well recognised, resulting in a significant number of patients being treated far less than optimally.^{6,7} In other words, although guidelines have been developed, acceptance and implementation in routine clinical practice is a complex and difficult process. To improve adherence to current guidelines the Leiden MISSION! project was developed.

The aim of MISSION! is to improve the care of AMI patients in the area serviced by the Regional Ambulance Service 'Hollands Midden', by bringing more evidence-based medicine into daily practice. The MISSION! protocol is developed based on the most recent European Society of Cardiology and American College of Cardiology/American Heart Association guidelines for AMI.^{1,2} While most implementation programmes focus on one or two aspects of AMI care, MISSION! contains all aspects: the prehospital, in-hospital, and postclinical phase (up to one year). This design makes the MISSION! protocol unique in its kind. As MISSION! covers both the acute and chronic phases, all regional healthcare providers are involved in the MISSION! project. The 'Hollands Midden' Region has 750,000 inhabitants and covers an area of approximately 80 by 40 km. To improve AMI care an intensive collaboration has been established between general physicians, regional ambulance service, three community hospitals (without PCI facilities), three cardiac rehabilitation centres and the Leiden University Medical Centre (LUMC, serving as the PCI facility).

MISSION! is designed to restructure and optimise AMI care, concentrating on early and aggressive reperfusion therapy, active lifestyle improvement and implementation of guidelines; the prehospital phase is focused on reduction of the treatment delay by early AMI diagnosis, prehospital triage of patient's eligibility for primary PCI or thrombolysis, and direct transfer to one of the four centres for an aggressive and appropriate reperfusion therapy. In order to achieve reduction of treatment delay, electronic data communication has been established between the ambulances and the LUMC coronary care unit. The in-hospital phase is focused on early administration of evidence-based medication, active involvement of the patient in changing his/her lifestyle (such as smoking cessation, healthy diet, weight management and exercise) and is supported by a nurse practitioner. Furthermore, attention is paid to early and safe discharge of the uncomplicated patient. The postclinical phase is focused on regular and structured outpatient's visits during the first

Publisher and editorial office

Bohn Stafleu van Loghum
 Het Spoor 2, PO Box 246,
 3990 GA Houten, The Netherlands
 tel. + 31 30 638 38 38,
 fax: + 31 30 638 38 39

ISSN 0929-7456

Netherlands Heart Journal is published eleven times a year by Bohn Stafleu van Loghum, the Netherlands Heart Foundation and the Netherlands Society of Cardiology. Netherlands Heart Journal is the official journal of the Netherlands Society of Cardiology.

Netherlands Heart Journal is made available to cardiologists, cardiologists in training, cardiopulmonary surgeons, cardiopulmonary surgeons in training, internists and paediatric cardiologists.

The Editorial Board is independent. The opinions expressed by the Editorial Board and the authors of articles are not necessarily those of the Netherlands Heart Foundation, the Netherlands Society of Cardiology or the Publisher. The content of the Nieuwsbrief and the CVOI section does not fall under the responsibility of the Chief Editors.

Circulation: 2900 copies

Subscriptions and change of address

Customer service Bohn Stafleu van Loghum
 PO Box 246, 3990 GA Houten,
 The Netherlands
 tel. + 31 30 638 37 36,
 fax: + 31 30 638 39 99
 For information and orders please consult
 www.bsl.nl

Distributor in Belgium:

Standaard Uitgeverij
 Belgiëlei 147a
 2018 Antwerpen
 www.standaarduitgeverij.be

Subscriptions

Annual rates for companies and institutions €111.80; for personal subscribers €98. Price per issue €13.10 excl. postage costs. All prices include value added tax (VAT). Other rates on request. Subscriptions can commence at any moment and will be automatically renewed unless cancellations are made, in writing, to the Publisher at least two months before the start of the new subscription period.

Deliveries and services will be carried out according to the conditions of BSL, registered at the Chamber of Commerce in Utrecht, file number 30073597 on February 7th 2003. The conditions can be looked at on www.bsl.nl or can be sent to the buyer on request.

Advertisements

Bohn Stafleu van Loghum
 Het Spoor 2, PO Box 246,
 3990 GA Houten, The Netherlands
 Advertisement rates are available on request:
 tel. +31 30 638 37 94,
 fax: + 31 30 638 38 39
 www.bsl.nl/advertiser

year following AMI. According to the protocol a number of functional tests are carried out. The medical and lifestyle goals achieved are monitored and when necessary the physician and nurse practitioner emphasise the principles of secondary prevention. Following discharge, all patients are offered an outpatient rehabilitation programme.

To enhance adherence to the MISSION! protocol we customised the following guideline orientated care tools: flowcharts for all MISSION! phases, a guideline-based electronic data management system (CARIS 5.8, Leiden University Medical Centre), standard orders, chart stickers, patient's folders and a MISSION! website for patients and professionals.⁸ MISSION! adherence indicators are created to assess the quality of care. These MISSION! adherence indicators are based on key indicators used in previous studies, but in an enlarged version in accordance with the recent guidelines.^{9,10}

The design of the MISSION! protocol started in October 2003 and the first patients were enrolled in February 2004. Until now 150 patients have been included in the clinical and postclinical MISSION! protocol. The communication between ambulances and the LUMC started as a pilot in September 2004 and will be operational in January 2005. The initial results from the pilot have already demonstrated that a significant reduction in treatment delay can be achieved as door-to-balloon time reduced from 94 min ± 33 before vs. 58 min ± 18 after implementation of the pilot. Four patients died during in-hospital stay. The duration of hospitalisation was 3.7 days ± 2.6. Of the patients, 64% were discharged within three days. Drug therapy on discharge was 98% aspirin, 86% β-blockers, 93% ACE inhibitors, 99% clopidogrel and 99% lipid-lowering drugs. In 91% of the patients, a blood pressure <140/90 mmHg was achieved and at 30 days' follow-up a cholesterol <4.5 mmol/l⁻¹ was achieved in 80% of the patients (at admission 19%). 67% of the smokers (51%) quit smoking and 84% were participating a rehabilitation programme. One patient died after discharge.

Although guidelines for the treatment of AMI patients have been developed and several studies have shown that adherence to guidelines reduces morbidity and mortality, a significant number of patients are still treated far less than optimally. Implementation of guidelines is a complex and difficult process. However, the preliminary data from MISSION! suggest that this guideline implementation programme stimulates adherence to evidence-based medicine. MISSION! is unique in its kind, as all phases of AMI care are addressed by MISSION! It is, however, extremely important to recognise that successful implementation of guidelines into clinical practice depends on close collaboration between all the different health care providers and requires an aggressive approach. It will soon be time to think of an effective way to disseminate the MISSION! approach nationwide. ■

S.S. Liem

B.L. van der Hoeven

M.J. Schalij

E.E. van der Wall

Department of Cardiology, Leiden University Medical Centre, Leiden

References

- 1 Antman EM, Anbe DT, Armstrong PW, et al. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Revise the 1999 Guidelines for the Management of Patients with Acute Myocardial Infarction). *Circulation* 2004;110:82-292.
- 2 Van de Werf F, Ardissino D, Betriu A, et al. Management of acute myocardial infarction in patients presenting with ST-segment elevation. The Task Force on the Management of Acute Myocardial Infarction of the European Society of Cardiology. *Eur Heart J* 2003;24:28-66.

© 2005 Bohn Stafleu van Loghum

All Rights Reserved. No part of this publication may be reproduced, stored in retrieval, or transmitted in any form or by any other means, electronic, mechanical, photocopying, recording or otherwise, without prior permission, in writing, of the Publisher.

The Editorial Board and Publisher will not be responsible for the content of the articles published under an author's name or of the advertisements.

- 3 Eagle KA, Guidelines-based Standardized Care Substantially Reduces Mortality in Medicare Patients with Acute Myocardial Infarction: The American College of Cardiology Guidelines Applied in Practice Program in Michigan. Late-Breaking Clinical Trials II, American College of Cardiology 52nd Annual Scientific Session.
- 4 Fonarow GC, Gawlinski A, Moughrabi S, et al. Improved treatment of coronary heart disease by implementation of a Cardiac Hospitalization Atherosclerosis Management Program (CHAMP). *Am J Cardiol* 2001;**87**:819-22.
- 5 Mukherjee D, Fang J, Chetcuti S, et al. Impact of combination evidence-based medical therapy on mortality in patients with acute coronary syndromes. *Circulation* 2004;**109**:745-9.
- 6 Clinical reality of coronary prevention guidelines: a comparison of EUROASPIRE I and II in nine countries. EUROASPIRE I and II Group. European Action on Secondary Prevention by Intervention to Reduce Events. *Lancet* 2001;**357**:995-1001.
- 7 Simoons ML, de Boer MJ, Boersma E, et al. Continuously improving the practice of cardiology. *Neth Heart J* 2004;**12**:110-6.
- 8 Mehta RH, Montoye CK, Faul J, et al. Enhancing quality of care for acute myocardial infarction: shifting the focus of improvement from key indicators to process of care and tool use: the American College of Cardiology Acute Myocardial Infarction Guidelines Applied in Practice Project in Michigan: Flint and Saginaw Expansion. *J Am Coll Cardiol* 2004;**43**: 2166-73.
- 9 Marciniak TA, Ellerbeck EF, Radford MJ, et al. Improving the quality of care for Medicare patients with acute myocardial infarction: results from the Cooperative Cardiovascular Project. *JAMA* 1998;**279**:1351-7.
- 10 Mehta RH, Montoye CK, Gallogly M, et al. Improving quality of care for acute myocardial infarction: The Guidelines Applied in Practice (GAP) Initiative. *JAMA* 2002;**287**:1269-76.