Follow your heart: optimal care after a heart attack – a guide for you and your patients

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Considerable variation exists in adherence to and implementation of post-myocardial infarction (post-MI) clinical guidelines in the UK. The Follow Your Heart Steering Group has consolidated existing clinical evidence and published guidance into a consensus of succinct recommendations for optimal post-MI management, which includes separate healthcare professional and patient-focused components. This guidance should help encourage two-way dialogues between patients and healthcare professionals, reduce practice variation, raise standards of care, maximise healthcare resource utilisation and improve outcomes in post-MI patients. It is our intention to develop and widely disseminate a simple algorithm for healthcare professionals and for patients that summarises the guidance.

Introduction

Coronary heart disease (CHD) remains the leading cause of mortality in the UK with over 94,000 attributable deaths in 2006,[1] the majority of which were the result of a myocardial infarction (MI). Approximately half of those who suffer an MI die within 28 days,[2] however, with modern technology, procedures and new drugs, increasing numbers survive a heart attack, resulting in 1.4 million post-MI survivors in the UK.[3] If patients do not receive optimal post-MI care, the individual and socio-economic burden is significant. In monetary terms this is estimated to be around £9 billion per year when both direct and indirect costs are included.[4]

Clinical guidance

Current evidence suggests that adherence to clinical guidelines may reduce practice variation and standardise healthcare resource utilisation thus raising standards of care and ultimately improving health outcomes for the population.[5,6] The National Institute for Health and Clinical Excellence (NICE) has published several guidelines of relevance to the management of CHD, in particular, clinical guidance on the secondary prevention of MI published in 2007.[7] The National Health Service (NHS) is expected to implement NICE guidelines, however, frequently, insufficient attention is devoted to drawing-up effective strategies for their adoption and implementation. As a consequence, implementation varies across the country depending on the healthcare infrastructure, resources available and priorities of the primary care and acute trusts.[8]

Current practice

To understand the extent to which guidance on the clinical management of post-MI patients is made available to healthcare professionals (HCPs) and implemented, we undertook a qualitative survey involving Primary Care Trusts (PCTs) and cardiac networks in England, and HCPs (general practitioners [GPs] and nurses) across the UK. The results suggest that there is considerable variation in the awareness of recommendations, their availability and implementation, with consequent variations in the clinical management of post-MI patients as reported by HCPs.[9] While both GPs and nurses refer to national guidelines, such as those provided by NICE, as a key driver in influencing patient care, the results from this study indicate that actual clinical practice may differ.

Rationale for new post-MI guidance

The survey provided a compelling rationale for the development of new post-MI guidance that consolidates existing clinical evidence and published guidelines, with the intention of presenting optimal patient care and treatment. To this end, HEART UK, the Primary Care Cardiovascular Society (PCCS) and Pfizer have come together in a novel three-way partnership to develop new guidance containing separate components for clinicians and patients, and uniquely recognise the importance of patients and their families in achieving best clinical outcomes.

Myocardial infarction

MI forms part of the spectrum of acute coronary syndromes (ACS), characterised by a combination of three diagnostic criteria: clinical history, electrocardiogram (ECG) changes and appropriate troponin changes.[10] ACS, therefore, encompasses unstable coronary artery disease from unstable angina to transmural MI.[11] We believe that all patients with ACS should be offered the same preventive opportunities as MI patients.

Cardiac rehabilitation and ongoing care

The short and long-term survival of post-MI patients is dependent upon modification of risk factors that are integral for development and progression of cardiovascular disease. Patients achieving substantial improvement in risk factors improve their outlook in terms of survival and reduced re-admissions to hospital.

Cardiac rehabilitation provides the link in post-MI care between secondary and primary care, and collaboration between both parties is vital to achieve optimal outcomes. An individualised plan should be developed for each patient, and initiated prior to hospital discharge. Patients need to understand that their ongoing care lies mainly within primary care with specialist intervention as required.

Cardiac rehabilitation supports the implementation of lifestyle modification linked into locally available services. The programme should be all-encompassing to enable patients to understand, and take responsibility for their recovery and their continued health. It should introduce the concept of risk, the importance of cardiovascular risk factors, and the usefulness of agreed individualised targets. Improved adherence to an agreed management plan including the use of cardioprotective drugs to help prevent further cardiac events is the desired outcome. The MyAction programme[12] based on the results of EuroAction is a useful example.[13]

The programme should address specific areas of concern to post-MI patients and their partners, with an emphasis on new or ongoing symptoms, allaying of misconceptions and encouragement to resume a normal, but healthier lifestyle. It should address sexual dysfunction, psychological and social issues, as well as occupational factors. Patients should be screened for clinical levels of anxiety and depression so that severe problems may be identified and referred to specialist services, if required.

Both primary and secondary care should have defined pathways to monitor effective continuity of care, which ideally, should conform to auditable British Association of Cardiac Rehabilitation (BACR) standards.[14]

Lifestyle modification

Lifestyle changes are essential to improve cardiovascular health, particularly post-MI (**table 1**),[7,15-23] and, wherever possible, all family members should be encouraged to adopt positive lifestyle changes together.

Table 1. Key points for lifestyle modification following a myocardial infarction

Eat a healthy, balanced diet[15]	• Consider a Mediterranean-style diet. Increase fresh food intake and reduce processed foods[16] • Eat less fat. Reduce intake of foods high in saturated fat, e.g. fatty and processed meat, full-fat dairy products, biscuits, cakes, pastries and some convenience snack foods. Opt for unsaturated fats, e.g. sunflower and olive oil (polyunsaturated and monounsaturated fat)[17] • Eat more fruit and vegetables – at least five portions of different types a day – fresh, frozen or dried[18] • Choose wholegrain and high-fibre foods, e.g. wholegrain rice/pasta, wholemeal bread, oats, seeds, nuts, pulses, etc.[19] • Eat oily fish, at least two portions a week to provide omega-3 (e.g. salmon, trout, mackerel),[20] consider 1 g Omacor per day as an alternative • Reduce salt intake, aim for <6 g a day.[21] Beware of hidden salt content • Consider foods enriched with plant sterols or stanols, e.g. yoghurt, milk, margarine spreads[22]
Limit alcohol intake[7]	• Drink alcohol in moderation:, women ≤1–2 units/day, men ≤2–3 units/day
Increase physical activity[7]	• Be physically active, e.g. take the stairs, walk to shops, wash the car • Aim for at least 20–30 minutes of moderate activity each day to the point of mild breathlessness, e.g. walking, jogging, cycling, dancing or swimming
Do not smoke[23]	• Post-MI patients should not smoke • Smokers should be offered medication for smoking cessation and referred to local stop-smoking services
Manage weight[23]	• Balance energy intake with energy expenditure • Advice should be provided to individuals when body mass index (BMI) >25 kg/m^2 or those with an increased waist circumference • If overweight aim to lose around 0.5 kg/1 lb per week

Table 2. Optimal treatment targets following a myocardial infarction

Treatment area	Optimal target
Blood pressure	• <130/80 mmHg[23] • <125/75 mmHg for patients with chronic kidney disease (CKD)[27]
Cholesterol	• TC <4.0 mmol/L[23,28] • HDL-C >1.0 mmol/L for males and >1.2 mmol/L for females[29] • Non-HDL-C <2.8 mmol/L[24-26] • LDL-C <2.0 mmol/L[23] • Blood test **must** be fasting for LDL-C (otherwise non-fasting LDL-C calculation invalid)[23]
Blood sugar	• HbA_{1c} <6.5%[23]
Weight	BMI[23] • <25 kg/m^2
	Waist circumference[29] • Europids o Male <94 cm o Female <80 cm • South Asians and Chinese o Male <90 cm o Female <80 cm

Key: BMI = body mass index; HbA_{1c} = glycosylated haemoglobin; HDL-C = high-density lipoprotein cholesterol; LDL-C = low-density lipoprotein cholesterol; TC = total cholesterol

Goal of intervention

The goal of intervention is to achieve optimal control of all modifiable cardiovascular risk factors (**table 2**).[23-29] Primary targets for lipid lowering are total cholesterol and low-density lipoprotein cholesterol (LDL-C). However, many patients are monitored with non-fasting serum samples, and non-high-density lipoprotein cholesterol (non-HDL-C, fasting or non-fasting) has been recommended as an alternative to calculated LDL-C,[24,25] and may be a stronger predictor of cardiovascular outcomes on statin treatment (2.8 mmol/L non-HDL-C is equivalent to 2.0 mmol/L LDL-C).[26]

Therapeutic interventions

Lipid-lowering therapy

For patients with previous MI:

- Simvastatin 40 mg daily (if patient is statin naïve)[28]
- Follow-up at three months to ensure cholesterol target met; if not switch to more potent statin, i.e. atorvastatin 40–80 mg daily or rosuvastatin 10–40 mg daily[30]
- If target not met with maximum tolerated dose of statin, consider adding ezetimibe 10 mg daily[31]
- Simvastatin 80 mg daily is not recommended due to concerns regarding its tolerability/potential for side effects.[32]

For patients presenting with acute MI or ACS:

- Higher-intensity statin therapy,[28] e.g. atorvastatin 80 mg is recommended.

Pre-testing and monitoring

Baseline liver function (transaminases) should be less than three times normal level:[28]

- Prior to initiation
- Three months after initiation or titration
- Measure at 12 months (but not again unless clinically indicated).

Measure lipid profile:[23]

- Three months after initiation
- Three months after any further titration
- Annually once target achieved.

Angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs)

For **all** post-MI patients:[7]

- Commence ACE inhibitor, e.g. ramipril, perindopril. If the patient is intolerant of ACE inhibitors use an ARB, e.g. losartan
- Titrate upwards at short intervals, e.g. every two weeks
- Aim for maximum tolerated or target dose of the individual drug.

Pre-testing and monitoring

Urea, creatinine and electrolytes should be measured:[7]

- Prior to initiation
- Within two weeks of initiation and at each dose increment
- Every 6–12 months thereafter (more frequently if clinically appropriate).

Antiplatelet agents

For **all** post-MI patients:

- Aspirin 75 mg daily for life.[7]

Use clopidogrel as an add-on therapy in patients with:

- Non-ST elevation MI (NSTEMI) ACS and who are moderate-to-high risk of MI or death, continue for 12 months[7]
- ST-elevation MI (STEMI), continue for at least four weeks (unless indications for continuing, e.g. percutaneous coronary intervention [PCI])[7]
- PCI with stent insertion – duration of therapy as determined at the time of PCI.[33]

Consider clopidogrel monotherapy for patients with aspirin hypersensitivity.[7]

Beta blockers

For **all** post-MI patients:

- Commence beta blocker before discharge from hospital, e.g. bisoprolol[7]
- If evidence of left ventricular systolic dysfunction use beta blocker licensed for heart failure[7]
- Titrate up to target, or maximum tolerated dose[7]
- Clinical experience suggests that treatment should continue indefinitely.[11]

Warfarin

For **particular** post-MI patients:[7]

- For patients with existing indication for anticoagulation (e.g. atrial fibrillation, mechanical heart valve, left ventricular thrombus) continue warfarin. Consider addition of aspirin if risk of bleeding is low

and International Normalised Ratio (INR) target range is 2–3

- If unable to tolerate aspirin or clopidogrel, consider moderate-intensity treatment with warfarin (target INR 2–3) for up to four years
- Where combination therapy (warfarin and an antiplatelet agent) is being considered, an individualised risk/benefit analysis is warranted.

Aldosterone antagonists

For **particular** post-MI patients with clinical evidence of heart failure:[7]

- For patients with significant clinical symptoms and/or signs of heart failure and significant evidence of left ventricular systolic dysfunction, consider treatment with an aldosterone antagonist licensed for post-MI treatment. Initiate 3–14 days post-MI and preferably after introduction of ACE inhibitor
- If spironolactone is already prescribed at low dose for pre-existing heart failure, continue, or replace with eplerenone in patients intolerant to spironolactone.

Pre-testing and monitoring

Urea, creatinine and electrolytes should be measured:[7]

- Prior to initiation
- One week after initiation
- Two weeks after initiation
- Monthly thereafter for three months and subsequently at three-to-six monthly intervals
- If hyperkalaemia becomes a problem, the dose should be halved or the drug stopped.

Note: It is each clinician's responsibility to check for contraindications to the introduction or titration and potential interactions of medication (and consult the *British National Formulary* and appropriate Summaries of Product Characteristics [SPCs]) before prescribing.

Integrated communication

Good communication between secondary and primary care, community services and the patient is essential.[7]

The hospital discharge summary post-MI is vitally important to:[34]

- Confirm diagnosis
- Provide results of investigations performed and future investigations required
- Document any in-hospital complications and resulting interventions
- Provide details of medication prescribed with guidance on up-titration
- Provide recommendations on testing the patient's relatives
- Include the patient's agreed care plan.

All patients should receive an individualised management plan which:

- Is culturally sensitive
- Contains evidence-based information
- Includes input from the patient and carers/family
- Provides recommendations on daily living (e.g. driving, returning to work, etc.)[35]
- Documents what to expect of primary care services.

The patient should receive a printed copy of the discharge summary when leaving hospital with a date for a follow-up appointment.

The community team and the patient should be notified of the outcome of follow-up attendances in specialist care.

Discussion

The Follow Your Heart Steering Group, a multi-disciplinary group comprising of clinical practitioners from primary and secondary care, representatives from HEART UK, PCCS and Pfizer and a patient representative, identified a need for new post-MI guidance, which consolidated existing clinical evidence and published guidelines. We have developed succinct guidance, with components for healthcare practitioners and for patients and their carers, for the optimal management of the post-MI patient following discharge from hospital. We have used an approach that not only informs HCPs, providing them with clear clinical guidance to ensure increased uptake of preventive therapies and comprehensive patient monitoring, but also informs the patient of what they should expect. This should provide patients with a greater understanding of their condition and encourage an active role in their ongoing management with increased personal responsibility for their future health and wellbeing.

Following hospital discharge, the post-MI patient journey should continue across organisational boundaries with effective communication between all agencies as outlined. Timely referral from hospital through all phases of cardiac rehabilitation, to ongoing structured care and follow-up within general practice will be encouraged. This guidance will help inform the development of locally agreed protocols and encourage long-term lifestyle and exercise programmes. The patient and carer experience of that journey will be improved with pro-active involvement in individual care plans ensuring that each experience will be part of a process to improve clinical outcomes.

Conclusion

In clinical practice, many post-MI patients receive sub-optimal care following discharge from hospital. We have sought to address this by consolidating the available evidence and guidance into an easily digestible format, with components for HCPs and patients. The guidance highlights the key aspects for optimal patient management, which,

Key messages

- The Follow Your Heart Steering Group has identified a need for simple, consistent, evidence-based post-myocardial infarction (post-MI) guidance tailored to primary care practitioners and their patients
- We have consolidated existing clinical evidence and published guidance into a consensus of recommendations for optimal care, which include separate healthcare professional and patient-focused components
- This guidance should help encourage two-way dialogues between patients and healthcare professionals, reduce practice variation, raise standards of care, maximise healthcare resource utilisation and improve outcomes in post-MI patients

we anticipate, will lead to improvements in the care and quality of life of the post-MI survivor. It is the intention of the Steering Group to develop and widely disseminate a simple algorithm for HCPs and patients that summarises the guidance

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Conflict of interest

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References

1. British Heart Foundation Statistics Database. 1. Mortality. Available from: http://www.heartstats.org/temp/2008.Chaptersp1.pdf [accessed May 2009].

2. British Heart Foundation. Survival after a heart attack. Available from: http://www.heartstats.org/datapage.asp?id=1590 [accessed May 2009].

3. British Heart Foundation Statistics Database. 2. Morbidity. Available from: http://www.heartstats.org/temp/2008.Chaptersp2.pdf [accessed May 2009].

4. British Heart Foundation. Health care and economic costs of CVD and CHD. Available from: http://www.heartstats.org/datapage.asp?id=101 [accessed May 2009].

5. Grimshaw JM, Russell IT. Effect of clinical guidelines on medical practice: a systematic review of rigorous evaluations. *Lancet* 1993;**342**:1317–22.

6. Bahtsevani C, Udén G, Willman A. Outcomes of evidence-based clinical practice guidelines: a systematic review. *Int J Technol Assess Health Care* 2004;**20**:427–33.

7. National Institute for Health and Clinical Excellence. NICE CG 48. Secondary prevention in primary and secondary care for patients following a myocardial infarction. London: NICE, May 2007. Available from: http://www.nice.org.uk/nicemedia/pdf/CG48NICEGuidance.pdf [accessed May 2009].

8. Rawlins MD. NICE work – providing guidance to the British National Health Service. *N Engl J Med* 2004;**351**:1383–5.

9. Ong S, Milne D, Morrell J; on behalf of the Follow Your Heart Steering Committee. Post-MI clinical guidelines: variation in availability, development, content and implementation across the UK. *Br J Cardiol* 2009;**16**:142–6.

10. Thygesen K, Alpert JS, White HD. Joint ESC/ACCF/AHA/WHF Task Force for the redefinition of myocardial infarction. *Eur Heart J* 2007;**28**:2525–38.

11. Scottish Intercollegiate Guidelines Network. SIGN CG 93. Acute coronary syndromes: a national clinical guideline. Edinburgh: SIGN, February 2007. Available from: http://www.sign.ac.uk/pdf/sign93.pdf [accessed May 2009].

12. Jennings C, Jones J, Mead A *et al.* MyAction: a novel preventive cardiology programme for coronary patients, those at high multifactorial risk of developing cardiovascular disease and their partners in the community. *J Cardiovasc Nurs* (Poster abstract at the Preventive Cardiovascular Nurses' Association (PCNA) 15th Annual Symposium – in press July/August 2009).

13. Wood DA, Kotseva K, Connolly S *et al.*; on behalf of the EUROACTION Study Group. Nurse-coordinated multidisciplinary, family-based cardiovascular disease prevention programme for patients with coronary heart disease and asymptomatic individuals at high risk of cardiovascular disease: a paired, cluster-randomised controlled trial. *Lancet* 2008;**371**:1999–2012.

14. British Association for Cardiac Rehabilitation. Standards and core components for cardiac rehabilitation – 2007. Available from: http://www.bcs.com/documents/affiliates/bacr/BACR%20Standards%202007.pdf [accessed May 2009].

15. Food Standards Agency. Healthy diet. Available from: http://www.eatwell.gov.uk/healthydiet/ [accessed May 2009].

16. HEART UK. Healthy eating fact sheet D10: Mediterranean diet. Available from: http://www.heartuk.org.uk/images/uploads/healthylivingpdfs/HUK_factsheet_D10_MediterraneanDiet.pdf [accessed May 2009].

17. Food Standards Agency. Saturated fat. Available from: http://www.eatwell.gov.uk/healthydiet/fss/fats/satfat/ [accessed May 2009].

18. HEART UK. Healthy eating fact sheet D04. Available from: http://www.heartuk.org.uk/images/uploads/healthylivingpdfs/HUK_factsheet_D04_fruitVeg.pdf [accessed May 2009].

19. NHS Choices. Why is fibre important? Available from: http://www.nhs.uk/chq/pages/1141.aspx [accessed May 2009].

20. Food Standards Agency. Oily fish. Available from: http://www.eatwell.gov.uk/healthydiet/nutritionessentials/fishandshellfish/#cat232819 [accessed May 2009].

21. Food Standards Agency. Salt. Available from: http://www.eatwell.gov.uk/healthydiet/fss/salt/ [accessed May 2009].

22. HEART UK. Healthy eating fact sheet F06. Available from: http://www.heartuk.org.uk/images/uploads/healthylivingpdfs/HUK_factsheet_F06_PlantSterols.pdf [accessed May 2009].

23. Joint British Societies. JBS 2: Joint British Societies' guidelines on prevention of cardiovascular disease in clinical practice. *Heart* 2005;**91**(Suppl V):v1–v52.

24. Brunzell JD, Davidson M, Curt D *et al.* Lipoprotein management in patients with cardiometabolic risk: consensus report from the American Diabetes Association and the American College of Cardiology Foundation. *J Am Coll Cardiol* 2008;**51**:1512–24.

25. Charlton-Menys V, Betteridge DJ, Colhoun H *et al.* Targets of statin therapy: LDL cholesterol, non-HDL cholesterol, and apolipoprotein B in type 2 diabetes in the Collaborative Atorvastatin Diabetes Study (CARDS). *Clin Chem* 2009;**53**:473–80.

26. Robinson JG, Songfeng Wang MS, Smith BJ *et al.* Meta-analysis of the relationship between non-high-density lipoprotein cholesterol reduction and coronary heart disease risk. *J Am Coll Cardiol* 2009;**53**:316–22.

27. Williams B, Poulter NR, Brown MJ *et al.* British Hypertension Society. Guidelines for management of hypertension: report of the fourth working party of the British Hypertension Society, 2004-BHS IV. *J Hum Hypertens* 2004;**18**:139–85.

28. National Institute for Health and Clinical Excellence. NICE CG 67. Lipid modification: cardiovascular risk assessment and the modification of blood lipids for the primary and secondary prevention of cardiovascular disease. London: NICE, May 2008. Available from: http://www.nice.org.uk/nicemedia/pdf/CG067NICEGuideline.pdf [accessed May 2009].

29. International Diabetes Federation. IDF Consensus worldwide definition of the metabolic syndrome, 2006. Available from: http://www.idf.org/webdata/docs/MetS_def_update2006.pdf [accessed May 2009].

30. Law M, Wald N, Rudnicka A. Quantifying effect of statins on low density lipoprotein cholesterol, ischaemic heart disease, and stroke: systematic review and meta-analysis. *BMJ* 2003;**326**:1423–9.

31. National Institute for Health and Clinical Excellence. NICE Technology Appraisal Guidance 132. Ezetimibe for the treatment of primary (heterozygous-familial and non-familial) hypercholesterolaemia. London: NICE, November 2007. Available from: http://www.nice.org.uk/nicemedia/pdf/TA132QRGFINAL.pdf [accessed May 2009].

32. Clinical Trial Service Unit and Epidemiological Studies Unit press release, University of Oxford. Results from the word's largest trial of the benefits of more intensive cholesterol-lowering and of the safety of folic acid supplementation (The SEARCH Study), 9 November 2008. Available from: http://www.ctsu.ox.ac.uk/~search/results/search_release_091108.pdf [accessed May 2009].

33. Silber S, Albertsson P, Aviles FF *et al.* Guidelines for percutaneous coronary interventions. The Task Force for percutaneous coronary interventions of the European Society of Cardiology. *Eur Heart J* 2005;**26**:804–47.

34. NHS Quality Improvement Scotland. Draft clinical standards for prevention and treatment of coronary heart disease. Standard Statement 2. Edinburgh: NHS Quality Improvement Scotland, February 2009. Available from: http://www.nhshealthquality.org/nhsqis/files/HeartDisease_CHDDraftStandards_FEB09.pdf [accessed May 2009].

35. National Institute for Health and Clinical Excellence. NICE CG83. Rehabilitation after critical illness. London: NICE, March 2009. Available from: http://www.nice.org.uk/nicemedia/pdf/CG083NICEGuideline.pdf [accessed May 2009].