Heart attack patients in England are getting faster treatment but there is still more to do

Tom Quinn

Introduction

The first public report on how the NHS manages acute myocardial infarction (MI) in English hospitals was published on 19th November 2002.[1] The report, based on almost 40,000 records collected by the Myocardial Infarction National Audit Project (MINAP) team based at the Royal College of Physicians (RCP), gave rise to much media commentary, the BBC news leading with the headline *Heart units too slow with vital drugs*.[2]

The MINAP project was established as a joint venture between the RCP, British Cardiac Society and other professions in response to the National Service Framework (NSF) for Coronary Heart Disease.[3,4] Great care was taken to develop a comprehensive core dataset,[5] to safeguard data quality and security and to facilitate both monitoring of NSF delivery and comparison of performance between different hospitals. This ambitious project, linked to the Central Cardiac Audit Database (CCAD),[6] now receives data from 206 of the 215 hospitals in England that receive patients with acute MI.

The data made public by MINAP demonstrate considerable improvement in NHS cardiac care. The fact that a mere quarter of hospitals (table 1) met the NSF target of a 30-minute 'door-to-needle time' in 75% of eligible patients (many more were within a few percentage points) needs to be seen in context: there was a near-threefold increase in patients treated within 30 minutes of hospital arrival since earlier multicentre audits[7] were first published in the early 1990s. Overall, nearly 70% of eligible patients commenced treatment within 30 minutes, a massive improvement on previous reports.

Important rise in use of secondary prevention drugs

Perhaps the greatest improvement reported by MINAP has been seen in the use of secondary prevention treatments following infarction compared to the patchy picture painted by the ASPIRE report some years ago.[8] The higher uptake of aspirin, beta blockers and statins with most hospitals achieving the NSF target is reassuring, and together with faster thrombolytic treatment must surely translate into improved outcomes for patients (table 2).

Professionally developed targets

The NSF thrombolysis targets were not 'dreamt up' by politicians or spin-doctors, but were developed on the advice of real ones (and nurses and others where appropriate). The RCP and British Cardiac Society first mooted a 30-minute 'door-to-needle time' and audit of this and the use of secondary prevention drugs in 1994.[9] The origins of the even more challenging 20-minute treatment time set for April 2003 can be traced back to influential European clinicians[10] and this target has recently been reiterated by the president of the European Society of Cardiology.[11] Nevertheless, there are those who argue that such targets are not clinically warranted and that they are unachievable without placing patients at risk.[12] (An opposing, more positive, view appeared in the letters column of the same edition of the journal.)[13] Similarly, the 60-minute 'call-to-needle time' (and the suggested 30-minute cut-off for considering pre-hospital treatment) standard set out in the NSF draws on guidance published by the European Society of Cardiology and European Resuscitation Council.[14] Indeed, the NHS in England is now being asked to plan for delivery of the 'whole systems' 60-minute 'call-to-needle time' standard over the next three years, with the implication that concentration on hospital delay alone is insufficient to deliver real clinical benefits.

Where concerns have rightly been expressed about the risks of expediting thrombolytic treatment, the potential for harm through unwarranted exposure to haemorrhagic side effects has loomed large. Such concerns deserve serious con-

Table 1. Hospitals meeting NSF targets for door-to-needle times, according to the MINAP report[1]

Criterion	Number of hospitals
Reached target	52
Within 25% of target	74
More than 25% from target	59
Fewer than 10 cases	21
No data	9
Total	215

Table 2. Number of hospitals meeting NSF targets for secondary prevention drugs, according to the MINAP report[1]

Criterion	Aspirin	Beta blocker	Statin
Reached target	193	152	150
Within 25% of target	1	39	40
More than 25% from target	2	3	3
Fewer than 10 cases	10	12	13
No data	9	9	9
Total	215	215	215

sideration. No one wants to give inappropriate treatment but inappropriate thrombolysis has yet to be formally defined. If a patient presents with a good history, generalised ST segment elevation and no contraindications to treatment, receives a thrombolytic drug but leaves hospital without a confirmed diagnosis of infarction, has treatment really been inappropriate? And what are the actual risks of 'over-treatment' versus 'under-treatment'?[15] The NSF thrombolysis targets apply solely to those patients with clear indications (clinical and ECG) at first presentation; where there is doubt then delaying treatment to obtain a senior opinion is of course justified (and the MINAP dataset allows for this). While these relatively straightforward cases lend themselves often to assessment and treatment protocols guided by checklist, it is accepted that some patients might be more difficult to manage.[16]

How should hospitals, commissioners and Strategic Health Authorities (and patients for that matter) respond to the MINAP report? The data presented in the public report are fairly detailed but individual hospitals will have access to fuller reports including elements of delay from symptom onset to call for help, ambulance arrival, and total 'call-to-needle time' which will facilitate, in the words of the European Task Force,[14] "a critical examination of the system". If audits such as MINAP are to really support improvements in patient care then the data need to be more than collected and reported upon – they need to be scrutinised, validated, and where problems are identified (for example, only a minority of patients with proven MI reach hospital within 30 minutes of the call for help) they need to trigger remedial action.

Strategic Health Authorities and Primary Care Trusts overseeing hospitals that did not achieve the 30-minute target should be working with their clinical and managerial colleagues to identify areas for improvement. Examples of questions that might need to be asked locally are suggested in the box. And of course the NSF itself sets out recommendations for inclusion in local models of care for heart attack, not least better communication between ambulance and hospital staff. This will be further supported by the equipment of ambulances with 12-lead ECG machines (a Class 1 recommendation in the recent International Consensus guidelines on advanced life support).[17] Increasingly, thrombolytic therapy will be commenced prior to arrival at hospital, particularly where journey times are prolonged. The CHD Collaborative programme (www.modernnhs.nhs.uk) now working across the NHS in England is a useful resource upon which to draw locally to support improvements in patient care and will have expertise on both clinical and modernisation (e.g. process mapping, improvement methodology) fronts.

My hospital didn't meet the thrombolysis target: some questions I need to ask

- Are data from my hospital complete and valid?
- Are there clear arrangements for communication between ambulance staff and the receiving hospital?
- Is thrombolysis given at the point of entry to hospital (A&E, or admissions ward if direct admission to CCU not available)?
- Is the initial ECG performed within 5–10 minutes of the patient presenting if not already transmitted from the ambulance?
- Are there clear hospital protocols for acute MI agreed by cardiology and A&E teams?
- Are the appropriate drugs (including the more expensive ones!) and infusion pumps (etc.) immediately available where the patients are assessed?
- Do A&E doctors have to refer for a general medical/cardiology opinion before starting thrombolytic treatment in all cases?
- Are there facilities to transmit/fax 'difficult' ECGs from A&E to CCU if needs be?
- Are appropriately trained nurses authorised to commence thrombolytic treatment under Patient Group Direction?
- What proportion of MI patients reach hospital within 30 minutes of the call for help? Should my Trust be working with ambulance colleagues on alternative methods of reducing treatment delay?

Key: A&E = accident & emergency department; CCU = coronary care unit; MI = myocardial infarction

Of perhaps most concern are those hospitals that did not submit any data. This is probably unacceptable in the modern NHS, particularly when the audit in question has been developed by the professions rather than imposed by government. Chief executives of those hospitals that have not contributed thus far will need to have serious discussions with relevant clinicians and managers and to seek reassurance that patient care is demonstrably acceptable when compared to other similar hospitals. And of course the performance management aspects of the NHS will require chief executives to know how well their organisation is doing against national standards.

Conclusion

The management of MI has undergone significant changes since the publication of landmark trials in the late 1980s. Professional bodies published guidelines soon afterwards but these seem to have had little impact on clinical practice so far as assessment and treatment processes are concerned. The publication of the NSF gave renewed impetus to shortening delays and there have been enormous improvements, as demonstrated by the MINAP data. Whole teams across the pre-hospital and acute interface are working really hard to reduce delays safely, and use of a secondary prevention regimen following infarction appears to be at an all-time high. There remain enormous room for improvement and little room for complacency at any level.

- Tom Quinn, a cardiac nurse, is a member of the CHD Taskforce and MINAP steering group. The views expressed are personal.

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