Rapid access chest pain clinics: are they clinically effective?

Coronary heart disease is the commonest cause of premature death in adults. Risk is greatest early after the development of symptoms and in a community-based study, 14% of patients diagnosed with angina and treated with sublingual nitrates developed serious complications within 6 months of presentation, often within the first 4 weeks (Duncan et al, 1976). A one-stop cardiac outpatient clinic also reported heightened risk for patients with recent onset cardiac symptoms, highlighting the importance of rapid assessment of patients with chest pain (Jain et al, 1997).

RAPID ASSESSMENT

Evidence-based treatments are available that can reduce risk and it is reasonable to assume, therefore, that rapid assessment has the potential to save lives (Antiplatelet Trialists Collaboration, 1994; Scandinavian Simvastatin Survival Study, 1994; Yusuf et al, 1994, 2000). This assumption led to the establishment of rapid access chest pain clinics in a limited number of centres (Norell et al, 1992; Gandhi et al, 1995; Davie et al, 1998; El Gaylani et al, 1998; Newby et al, 1998) and subsequently to recommendations for their more widespread implementation in the National Service Framework Document (NSF) for coronary heart disease (Department of Health, 2000).

The rapid access chest pain clinic at Newham (Timmis, 1999) was established in 1996, using a fax-based system (*Figure 1*) that allowed patients to be seen the same day of referral from primary care, with immediate computer-generated correspondence sent back to the referring physician detailing diagnoses and management decisions (Ray et al, 1998).

In order to make the clinic manageable guidelines were developed that emphasized the importance of recent onset symptoms while discouraging referral of very young patients in whom coronary disease is unusual. Also discouraged were patients with acute coronary syndromes who are better managed in the emergency department. These and other referral guidelines (*Figure 2*) were worked up in consultation with local primary care physicians to suit the needs of the catchment population and the facilities available. To date over 6000 patients have been seen in the rapid access chest pain clinic, about 25% of whom have been diagnosed with angina.

The rapid access chest pain clinic at Newham was identified as a service model in the NSF, which called for 50 further rapid access chest pain clinics in England by April 2001 and 100 by April 2002, with a maximum waiting time of 2 weeks between referral and attendance. These proved to be rather modest targets and there were already 161 clinics established by January 2002, reflecting the enthusiasm with which this method of outpatient care has been received.

MONITORING EFFECTIVENESS

Enthusiasm, however, should not be interpreted as confirmation that rapid access chest pain clinics are effective in identifying patients with cardiac chest pain or reducing their risk of future events. Indeed, very little is known about the effectiveness of rapid access chest pain clinics, early reports merely confirming their feasibility, with outcome data in four studies limited to small patient cohorts followed up for only 6–16 months (Duncan et al, 1976; Gandhi et al, 1995; Davie et al, 1998; El Gaylani et al, 1998). Thus the reliability of a single assessment for distinguishing between patients with cardiac and non-cardiac causes of chest pain is still not known.

Reliable information about outcomes and how these are affected by risk stratification and treatment is not available. It is not known whether differences in outcomes are consistent in women, ethnic minorities and older people, groups for whom cardiac presentation may differ from the classical picture and diagnosis is often less reliable (Chiamvimonvat and Sternberg, 1998; Philpott et al, 2001; Barakat et al, 2003). Nor do we know whether these important groups have equitable access to rapid access chest pain clinics.

Figure 1. Referral procedure for rapid access chest pain clinic. ECG = electrocardiogram.

- GP faxes referral proforma to dedicated number in cardiac department
- Patient attends between 12.00 and 2.00 pm Monday–Friday on the same day as the referral is made (next day for afternoon referrals)
- ECG on arrival. Seen by doctor
- All patient details entered onto database
- Computer-generated letter faxed back to GP same day

Figure 2. Referral guidelines for rapid access chest pain clinic. AMI = acute myocardial infarction.

- Recent onset chest pain in previous 2–4 weeks
- Do not refer
  - Patients who have been previously seen for assessment of chest pain
  - Patients known to have coronary disease
  - Men <30 years, women <40 years
  - Patients suspected of having AMI or unstable angina

FUTURE RESEARCH

These questions about rapid access chest pain clinics represent major gaps in our knowledge and need answering for proper evaluation of this new model of outpatient care. With the widespread implementation of rapid access chest pain clinics it is probably too late for randomized trials, but the opportunity for large prospective cohort studies with long-term follow-up must not be missed.

One such study is already under way involving the rapid access chest pain clinics at Newham and five other centres, all of which have been using the same electronic database, providing registry data on more than 10 000 patients. Central to this study will be an outcome analysis to determine whether the cardiac and non-cardiac diagnoses obtained in the rapid access chest pain clinics effectively risk stratify the patients and whether the clinics are indeed targeting high-risk patients. There will also be the opportunity to assess the equity of access to rapid access chest pain clinics by age, ethnic group and gender and to compare different models of care used in the centres participating in the study. The findings will provide the first systematic evaluation of rapid access chest pain clinics and will permit an estimate of their effectiveness for improving the management of patients with chest pain. HM

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KEY POINTS

- Rapid access chest pain clinics have been identified as a standard for outpatient care in the National Service Framework.
- Implementation of rapid access chest pain clinics is already ahead of the target set by the National Service Framework.
- The efficacy of rapid access chest pain clinics in identifying patients with cardiac chest pain and reducing their risk of future events is not known.

Antiplatelet Trialists' Collaboration (1994) Collaborative overview of randomised trials of anti-platelet therapy 1: prevention of death, myocardial infarction, and stroke by prolonged anti-platelet therapy in various categories of patients. *Br Med J* **308:** 81–106
Barakat K, Wells Z, Ramdhany S, Mills PG, Timmis AD (2003) Bangladeshi patients present with non-classic features of acute myocardial infarction and are treated less aggressively in east London. *Heart* **89:** 276–9
Chiamvimonvat V, Sternberg L (1998) Coronary artery disease in women. *Can Fam Physician* **44:** 2709–17
Davie AP, Caesar D, Caruana L et al (1998) Outcome from a rapid-assessment chest pain clinic. *Q J Med* **91:** 339–43
Department of Health (2000) *The National Service Framework for Coronary Heart Disease.* Stationery Office, London
Duncan B, Fulton M, Morrison SL et al (1976) Prognosis of new and worsening angina pectoris. *Br Med J* **i:** 981–5
El Gaylani N, Weston CFM, Shandall A, Penny WJ, Buchaltger MB (1998) Experience of a rapid access acute chest pain clinic. *Irish Med J* **90:** 12–6
Gandhi MM, Lampe FFC, Wood DA (1995) Incidence, clinical characteristics, and short-term prognosis of angina pectoris. *Br Heart J* **73:** 193–8
Jain D, Fluck D, Sayer RW, Ray S, Paul EA, Timmis AD (1997) Ability of a one-stop chest pain clinic to identify patients with high cardiac risk seen in a district general hospital. *J Royal Coll Phys Lond* **31:** 401–4
Newby DE, Fox KAA, Flint LL, Boon NA (1998) A same day direct-access chest pain clinic: improved management and reduced hospitalisation. *Q J Med* **91:** 333–7
Norell M, Lythall D, Coghlan G, Kushwaha S, Swan J, Ilsley C, Mitchell A (1992) Limited value of the resting electrocardiogram in assessing patients with recent onset chest pain: lessons from a chest pain clinic. *Br Heart J* **67:** 53–6
Philpott S, Boynton PM, Feder G, Hemingway H (2001) Gender differences in descriptions of angina symptoms and health problems immediately prior to angiography: the ACRE study. *Soc Sci Med* **52:** 1565–75
Ray S, Archbold RA, Preston S, Ranjadayalan K, Suliman A, Timmis AD (1998) Computer-generated correspondence for patients attending an open-access chest pain clinic. *J Royal Coll Phys* **32:** 420–1
Scandinavian Simvastatin Survival Study (1994) Randomised trial of cholesterol lowering in 4444 patients with coronary heart disease: the Scandinavian Simvastatin Survival Study (4S). *Lancet* **344:** 1383–9
Timmis AD (1999) Speeding up cardiac care. *Impact* **1:** 1–3
Yusuf S, Zucker D, Peduzzi P et al (1994) Effect of coronary artery bypass graft surgery on survival: overview of 10-year-results from randomised trials by the Coronary Artery Bypass Graft Surgery Trialists Collaboration. *Lancet* **344:** 563–70
Yusuf S, Sleight P, Pogue J, Bosch J, Davies R, Dagenais G (2000) Effects of the angiotensin-converting enzyme inhibitor, ramipril on cardiovascular events in high-risk patients. The Heart Outcomes Prevention Evaluation (HOPE) Study Investigators. *N Engl J Med* **342:** 145–53