Secondary prevention following myocardial infarction: evidence from an audit in South Wales that the National Service Framework for coronary heart disease does not address all the issues

P Underwood, P Beck

Coronary heart disease (CHD) is an important cause of death and serious morbidity in the UK. In March 2000 the Government published their National Service Framework (NSF) for CHD which outlined future CHD healthcare provision. The secondary prevention drug targets for CHD are shown in box 1. An early priority is to increase the effectiveness of these drugs in CHD prevention established CHD. As large studies have established the renin-angiotensin (ACE) inhibitors to 80–90% of patients with CHD management guidelines were in use. Data collection was carried out before publication of the NSF in England, we have re-examined our audit department carried out before publication of the NSF in England. No similar audit standards were set from a review paper published by Mehta and Eagle (2000) and were agreed locally before the start of the study (November/December 1998). No similar audit had been conducted within the trust before 1998 and no CHD management guidelines were in use. Data collection was retrospective from case notes by four doctors (two HOs, one SHO, and one SpR) using an in-house proforma (December 1998–January 1999). The SpR was able to resolve any difficulties in data collection. Included patients had to have been alive at the start of the audit and discharged with a new diagnosis of acute MI between 1 October 1997 and 31 October 1998. ICD-10 discharge codes 121.0–121.4 and 121.9 were used for...
Follow up

In October 1999 all surviving locally resident patients (identified using the hospital computer system) were sent a postal questionnaire requesting a medication list with doses. All were asked whether they were taking daily aspirin and, if not, whether they knew why not. Non-responders were sent a reminder questionnaire.

Recent total cholesterol results were obtained from the hospital computer system.

RESULTS

A total of 183 patients were discharged from Llandough Hospital following an acute MI between October 1997 and October 1998; 100 (55%) were audited (63% male; age range 41–89 years; 47% over 70 years of age). By October 1999 10 patients had died and three were living outside the area; 75 subjects replied to the questionnaire giving a return rate of 87%.

Aspirin

Unless contraindicated (allergy, warfarin, peptic ulcer disease), all patients (93% of total) were prescribed aspirin at discharge and all questionnaire responders were taking it at follow up.

Beta blockers

Fifty eight patients (58%) were discharged on beta blockers. Recognised contraindications to use (airway disease, moderate to severe heart failure, bradycardia, peripheral vascular disease) were identified in 31 of the remainder, leaving 11 patients (11%) in whom their use may have been appropriate. In October 1999 38 patients (51% of those reviewed) were on beta blockers; 11 (24%) had stopped using them and three had started.

ACE inhibitors

At discharge 54 patients (54%) were on ACE inhibitors. There was evidence of heart failure (AIRE study criteria) in 45 patients and 44 (97%) of these were on ACE inhibitors. At follow up, 45 of the 75 patients available for review (60%) were taking ACE inhibitors. None had stopped using them; 16 (36%) had increased the dose and five (16% of those not discharged on ACE inhibitors) had started. Lisinopril was the most prescribed ACE inhibitor (table 1).

Statins

Inpatient total cholesterol measurements were available for 93 (93%) patients. Seventy seven (83%) had a total cholesterol level which exceeded 5.0 mmol/l; 24 of these (31%) were referred to a dietician and 42 (55%) were discharged on a statin; 26 (34%) had neither. Of the questionnaire responders, 44 (59%) were on statins and 55 (73%) had subsequent total cholesterol measurements. Fourteen patients had commenced a statin since discharge and 19 (25% of responders) still had a total cholesterol level in excess of 5.0 mmol/l. Only three patients under 70 years with a total cholesterol level greater than 5.0 mmol/l were not on a statin in October 1999. However, of those who reported statin use in 1999, eight (18%) still had a total cholesterol level of more than 5.0 mmol/l.

DISCUSSION

Secondary prevention of acute MI has been the subject of several reviews and large surveys. Our use of aspirin, beta blockers, statins, and ACE inhibitors was better than previously reported, but the small sample size and non-random selection precludes direct comparisons. The NSF for CHD sets the target for use of secondary prevention treatments following acute MI at 80–90% to be achieved by April 2002. Our findings indicate that some of these targets were achieved in our area by 1999 but, more importantly, we have highlighted several problems with ongoing patient care which were poorly considered in the NSF.

One quarter of patients had discontinued beta blockers by the time of the follow up. The benefits of beta blockade following an acute MI have recently been re-emphasised and there is good evidence that patients on beta blockers, irrespective of actual or perceived contraindications, do better than those not receiving them. We do not have detailed information about each case, but the trend underlines a problem with beta blocker treatment. Patients are reluctant to take them and many doctors stop them at the first hint of a contraindication.

Although we were successful in initiating ACE inhibitors in patients with signs of heart failure, many remained on doses lower than those used in clinical trials. Avoidance of early complications of ACE inhibitors necessitates close supervision during initiation and upward titration. Although safe in the community, every effort should be made to increase treatment as an inpatient. With additional evidence favouring early ACE inhibition (0–36 hours) following an acute MI, this is not unrealistic although the decreasing length of hospital stay does create problems with dose escalation.

Of all the treatments proved to be successful in CHD prevention, the underuse of statins has been the most widely reported. Although our follow up indicates that many patients were prescribed these drugs by October 1999, at least one fifth needed further dose titration. The elderly accounted for most of those not receiving treatment by 1999. Elderly patients have a high absolute risk of CHD and are likely to benefit significantly from appropriate cholesterol lowering treatment.

If we are to realise the full potential of these drugs for CHD prevention, we need to ensure they are used to maximal effect. We have shown that achieving high prescribing levels is only a first step, and possibly the easiest to implement with suitable training. Important further targets are the appropriate continuation of beta blockers, achievement of ACE inhibitor dosage goals, and satisfactory cholesterol levels. How best to deliver these aspects of continuing CHD care is not discussed.

### Table 1 Breakdown of total daily lisinopril doses at discharge (1997/8) and follow up (1999)

<table>
<thead>
<tr>
<th>Lisinopril total daily dose (mg)</th>
<th>No of patients (1997/8)</th>
<th>No of patients (1999)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>5</td>
<td>20</td>
<td>10</td>
</tr>
<tr>
<td>7.5</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>10</td>
<td>8</td>
<td>4</td>
</tr>
<tr>
<td>15</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td>20</td>
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<td>8</td>
</tr>
<tr>
<td>Not stated</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>Total</td>
<td>40</td>
<td>30</td>
</tr>
</tbody>
</table>
in the NSF document. Additional resources are needed to ensure adequate patient follow up both in hospital and general practice. This could take the form of additional hospital based CHD clinics, perhaps nurse led, or a consultant/general practice run liaison service linking primary and secondary care. This is especially true in our area where the transition from hospital back to the community needs better integration around the time of hospital discharge. Improved communications between doctors and better patient education at this crucial time are also likely to be important issues.

Highly effective CHD prevention may yet be a bigger undertaking than is suggested in the NSF. Unless sufficient resources become available for treatment optimisation and better lines of communication are established between secondary and primary care, the achievement of these NSF targets may not necessarily equate with more effective patient care.

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