Treatment of cardiovascular disease: money well spent?

At a time of economic change globally and with potential difficult decisions ahead for many governments in regards to public spending cuts, how will some of the core medical priorities fare during this challenging economic period? One of the major issues for the NHS and health-care provision has been to curb the increase in cardiovascular mortality. However, where should resources be invested to continue to tackle this growing public health problem?

The cardiovascular problem

Cardiovascular disease is the largest cause of mortality in the world. In the UK, cardiovascular disease accounts for 35% (198 000) of all deaths annually (British Heart Foundation, 2009). Approximately half of these deaths are the result of coronary heart disease (British Heart Foundation, 2008). The annual incidence of myocardial infarctions in the UK is approximately 275 000.

The total cost of coronary heart disease in 2006 to the UK was calculated to be £9 billion (Allender et al, 2008), and this figure is set to rise. Moreover, the bill to the NHS directly from cardiovascular disease totals £3.2 billion, approximately £54 per person (Allender et al, 2008).

Heart disease in the NHS

The implementation of the National Service Framework for Coronary Heart Disease in 2000 led to improvements in the treatment of cardiovascular disease. The framework set out to establish standards and services throughout the UK to reduce coronary heart disease. This involved incorporating both primary and secondary specialist services to provide optimum therapy for all patients. The success of the framework was realized when the target of a 40% reduction in cardiovascular-related mortality by 2010 was already met in 2007 (Department of Health, 2008c). This was largely the result of a revised protocol for treating patients with myocardial infarctions involving the introduction of specialist 24-hour primary percutaneous coronary intervention centres (Department of Health, 2009).

Since the implementation of the National Service Framework there has also been a dramatic improvement in 'call to needle' times, with an average time now of only 67 minutes (Department of Health, 2008a). Funding has been crucial for this to occur, as it has allowed investment in new equipment and improved training of all health-care professionals, in particular paramedics and nurses (Department of Health, 2008a).

The introduction of primary percutaneous coronary intervention in 2002 has been instrumental in bringing NHS treatment of heart attacks into the 21st century. Seven pilot trusts were used and their treatment statistics were collated for the National Infarct Angioplasty Project. This showed that patients who received primary percutaneous coronary intervention rather than thrombolysis had fewer complications (Department of Health, 2008b). Over an 18-month follow up, mortality in the primary percutaneous coronary intervention group was 9.9% compared to 14.8% in those who were thrombolysed (Department of Health, 2008b).

In addition, 'door to balloon' times are crucial in patients who require angioplasty, as angioplasty is only superior than thrombolysis if performed within 90 minutes of admission. Patients who were admitted directly to a specialist primary percutaneous coronary intervention centre had a median door to balloon time of 31 minutes, but patients who were transferred to a non-primary angioplasty centre had a median door to balloon time of 130 minutes, highlighting the need for more specialist primary percutaneous coronary intervention centres (Department of Health, 2008a).

Cost is an important factor for the NHS, and primary percutaneous coronary intervention is more expensive than thrombolysis. The national guidance for treatment of heart attack (Department of Health, 2008b) concludes that primary percutaneous coronary intervention is a more cost-effective use of NHS resources only if patients are directly admitted to the catheter lab or transferred from the hospital's accident and emergency department (Department of Health, 2008b).

The future problem: heart failure

Given the advances in treatments for coronary heart disease, heart failure is set to become a more common sequelae of coronary heart disease. Currently coronary heart disease is the leading cause of heart failure, accounting for the majority of cases (Fox et al, 2001). Worryingly, projections of hospital admissions from 2006 highlighted a possible 50% increase in admissions in England as a result of heart failure by 2026–7 (Gnani and Ellis, 2001).

Medical treatment for heart failure requires a range of various medications. With successful medical treatment, mortality can be reduced, as shown by the CONSENSUS Trial Study Group (1987). Ellis et al (2001) showed that prescriptions of heart failure-related medications were poor, with prescription rates for beta-blockers and angiotensin-converting enzyme inhibitors (proven medical therapies for the treatment of heart failure) as low as 10.6% and 53.1% respectively in men. This demonstrates that medical treatment of patients was not optimal. The increase in targeted heart failure prescription rates may be attributable to the new GP contract, as there is a financial incentive to meeting such targets.

With optimal medication mortality still remains high among heart failure patients as shown by the Randomized Aldactone Evaluation Study (RALES) study, where mortality was 17.5% over a 24-month follow up (Pitt et al, 1999). This highlights that the prognosis for patients with heart failure is poor and that further research in this area is required to optimize patient therapy.

Combating future challenges

In order for the NHS to improve coronary heart disease treatment and reduce the long-term costs to the economy, it is important to increase the number of primary percutaneous coronary intervention centres across the country. The current plan is for 95% of the population to live an accessible distance from a 24/7 primary percutaneous coronary intervention myocardial infarction centre by 2011 (Department of Health, 2008b). This will ultimately reduce call to balloon times and thus hopefully improve outcomes for patients.

Raising awareness of coronary heart disease among ethnic minorities in the UK will help reduce the increasing prevalence of coronary heart disease and its burden on the UK economy. Ethnic minorities often struggle to access adequate support and treatment from the NHS. Therefore, further provisions have to be considered for these often-neglected groups; in particular communication problems are often a barrier for them. In large cities such as London this can be solved through well-structured health promotion schemes in partnership with local hospitals, to provide objective evidence of the success of such programmes.

The general population can also be targeted with public health campaigns aimed at major risk factors such as smoking. A recent campaign by the NHS has been effective in helping people stop smoking, but more can be done to achieve further cuts in smoking and target other risk factors such as obesity.

It is important for the government and NHS to pursue a hard-line primary prevention strategy, as without prevention, the prevalence and incidence of coronary heart disease will inevitably rise over the next decade. Health forecasts predict an increase in the financial burden of coronary heart disease through increased hospitalization and medication, and this, combined with the desire to limit costs, should make primary prevention strategies a priority in order to reap greater benefits in the future. BJHM

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KEY POINTS

- Cardiovascular disease, in particular coronary heart disease, is the biggest cause of mortality in the UK.
- The National Service Framework for Coronary Heart Disease has played a major role in reducing cardiovascular-related mortality, but this can still improve.
- More primary percutaneous coronary intervention specialist centres are being developed to provide greater access to all.
- Given the advances in treatment for coronary heart disease, heart failure is set to become a more common sequelae of coronary heart disease.