The new SIGN guidance on CHD and its implications for secondary care

The Scottish Intercollegiate Guidelines Network (SIGN) recently published a comprehensive guideline of the management of cardiovascular disease (CVD). Here, Dr Kevin Jennings and Professor Lewis Ritchie, co-chairs of the SIGN coronary heart disease (CHD) guidelines steering group, look at the implications of the recent guidance for secondary care. The full five guidelines covering acute coronary syndromes, cardiac arrhythmias in CHD, chronic heart failure, stable angina, and risk estimation and the prevention of CVD, are available at www.sign.ac.uk. In the last issue of the journal, the implications for primary care were considered (*Br J Cardiol* 2007;14:66-7).

SIGN is a collaborative network of healthcare professionals and its guidelines are developed by multidisciplinary groups using a standard methodology, based on a systematic review of the evidence. It is six years since the previous SIGN guideline on the management of CHD was published and there have been extraordinary developments in the pharmacological and interventional management of coronary events during this short period. These have been supported by compelling scientific evidence. We have recommended therapy and intervention only where it is supported by evidence, which is quoted and referenced in the recommendations, so that they are more credible.

SIGN have recruited experts and asked them to consider the competitively published evidence along with medical, paramedical and patient representatives. The guideline development groups also identified areas where they wished to extend the evidence-base to include cost analyses of the selected intervention. The resource impact of implementing some of these recommendations has, therefore, been estimated. As a result of ranked evidence, we have produced guidelines on the identification, risk-stratification, and medical and interventional management of these conditions. We have not attempted to write a textbook and thus this document presents guidance and recommendations distilled from the evidence, concentrating on the most important aspects of contemporary treatment: it does not purport to be a comprehensive cardiological text.

Some of the important recommendations include:

- Patients presenting with ST elevation acute coronary syndrome should undergo primary percutaneous coronary intervention, where available, within 90 minutes of diagnosis.
- Risk scores should be used to stratify patients with acute coronary syndrome, with those at medium or high CVD risk receiving early coronary angiography and revascularisation where indicated. SIGN has recommended the GRACE score, which has been obtained from a real life registry that provides a unified scoring system for acute coronary syndromes. In prospective evaluation, the GRACE registry was the most predictive of outcome.[1]
- More patients with threatening arrhythmias and heart failure should receive implantable cardiac defibrillators and cardiac resynchronisation therapy.
- Asymptomatic individuals aged 40 years or over should receive a risk assessment every five years. Anyone with a 10-year CVD risk of 20% or greater should be offered lifestyle advice and drug therapy, including simvastatin 40 mg/day. Patients with established symptomatic CVD should be considered for more intensive statin therapy.

Cholesterol lowering

Like the second Joint British Societies' guidelines on the prevention of CVD in clinical practice (JBS 2), we found no clinical trials which had evaluated the benefits of cholesterol lowering to different total and low-density lipoprotein (LDL) cholesterol targets in relation to clinical events.[2] A systematic review of randomised controlled trials, cohort studies and case control studies, which had examined the independent relationship between LDL cholesterol and major cardiovascular outcomes in patients with LDL cholesterol levels of less than 3.36 mmol/L, found that no clinical trial subgroup analyses could suggest the degree to which LDL cholesterol responds to a statin and independently predict the degree of cardiovascular risk reduction.[3] The review indicated that there was compelling evidence for the effectiveness of statin therapy in lowering cholesterol in patients at high cardiovascular risk (regardless of their natural LDL cholesterol values), but it concluded that current clinical evidence does not demonstrate that lipid therapy should be titrated to achieve proposed LDL cholesterol targets.

The current NHS Scotland target for individuals at high cardiovascular risk is a cholesterol level of < 5 mmol/L. Reducing this target to 4.5 or 4.0 mmol/L would have major

resource implications for NHS Scotland (treating to a cholesterol level of 4.0 mmol/L, for example, would add an additional £45 million per annum to the NHS budget in Scotland). Thus, the SIGN guideline development group suggests that current NHS Scotland targets are maintained as the minimum standard of care pending further studies on mortality, safety and cost-effectiveness. It is estimated that approximately one third of the Scottish population over the age of 40 will be considered to have a 10-year CVD risk of greater than 20%. These estimates assume risk is assessed using Framingham equations and not a risk scoring system that includes deprivation as a contributory factor. SIGN has commissioned the development of a score to include social deprivation as a risk variable. ASSIGN (based on the Scottish Heart Health Extended Cohort, a series of population studies from the 1980s and 1990s which are being followed up until the end of 2005) tends to classify more people with a positive family history and who are socially deprived as being at high risk. When used in its own host population, it abolished a large social gradient in future CVD victims who were not being identified for preventative treatment by the Framingham score: it therefore improved social equity.[4] This tool can be seen at http://assign-score.com

Costs

Implementing the recommendations in the SIGN coronary heart disease guidelines should markedly improve patient outcomes. Over the next five years, it is estimated that over 7,200 premature deaths from CVD and over 27,000 vascular events could be avoided. This is equivalent to a 9% reduction from the current CVD mortality rate and an 8% reduction from the current CVD event rate. As a direct result of avoiding CVD events, NHS Scotland could release over 60,000 bed days a year for alternative uses, with associated cost savings of over £20 million from fewer in-patient stays. The potential savings associated with guideline implementation represent about 16% of the current bed days and cost of managing CVD patients in the acute sector. The total estimated annual cost of implementing key recommendations within the guidelines in the first year (assuming full implementation across Scotland) is £40 million excluding VAT (£44 million including VAT), rising to £69 million per annum in year 6 (£78 million including VAT).

The publication of these guidelines is not the end of the project: we have formed a SIGN Implementation Group (which includes the Chair of the National Advisory Committee on CHD). This group will seek to promote the awareness and uptake of these recommendations and to apply pressure, where appropriate, to those who commission healthcare.

Conflict of interest

None declared.

References

1. de Araujo Goncalves P, Ferreira J, Aguiar C, Seabra-Gomes R. TIMI, PURSUIT and GRACE risk scores: sustained prognostic value and interaction with revascularisation in NSTE-ACS. *Eur Heart J* 2005;**26**:865-72.
2. British Cardiac Society; British Hypertension Society; Diabetes UK; HEART UK; Primary Care Cardiovascular Society; Stroke Association. JBS 2: Joint British Societies' guidelines on prevention of cardiovascular disease in clinical practice. *Heart* 2005;**9**(suppl 5):v1-52.
3. Hayward RA, Hofer TP, Vijan S. Narrative review: lack of evidence for recommended low-density lipoprotein treatment targets: a solvable problem. *Ann Intern Med* 2006;**45**:520-30.
4. Woodward M, Brindle P, Tunstall-Pedoe H for the SIGN group on risk estimation. Adding social deprivation and family history to cardiovascular risk assessment: the ASSIGN score from the Scottish Heart Health Extended Cohort (SHHEC). *Heart* 2007;**93**:172-6.

Kevin Jennings
Consultant Cardiologist
Aberdeen Royal Infirmary, Foresterhill,
Aberdeen, AB25 2ZN.

Lewis Ritchie
Professor of General Practice and Primary Care
University of Aberdeen, Foresterhill Health Centre,
Westburn Road, Aberdeen, AB25 2AY.

Correspondence to: Dr K Jennings
(E-mail: Kevin.Jennings@arh.grampian.scot.nhs.uk)

Br J Cardiol 2007;**14**:125–6