



# **PREVENTION OF CORONARY HEART DISEASE IN PEOPLE WITH TYPE 2 DIABETES**

## **Size of the problem**

Approximately 1.4 million people in the UK have diabetes, the majority (around 90%) with type 2 disease. A further million are believed to be undiagnosed and numbers are predicted to double in the next 25 years. The prevalence of diabetes is much higher amongst some ethnic minority communities than in the general population. The health survey for England suggests that for Pakistani and Bangladeshi men and women the rates are at least 3 times that in the general population. Coronary heart disease (CHD) is the leading cause of morbidity and mortality in people with diabetes, accounting for about 50% of all deaths.<sup>1</sup> Surveys across Europe show a diabetes prevalence of about 25% in CHD patients.

## **CHD risk**

Among those patients with diabetes, the incidence of CHD events including silent infarction is increased 2 to 3 fold compared with non-diabetics - the relative risk being higher in women. In a large prospective study, CHD risk in people with diabetes, but without overt CHD was similar to that in non-diabetics with established CHD.<sup>2</sup> Diabetic patients who suffer a myocardial infarction have a higher initial case fatality and a worse prognosis during the first and subsequent years post infarction. In the acute phase insulin/glucose infusion, followed by at least 3 months subcutaneous insulin has been shown to improve survival in the Swedish DIGAMI study.<sup>3</sup> Consequently, this regime has been introduced in many centres in Europe. However, resource and practical difficulties often preclude insulin therapy following discharge from hospital. Nevertheless, among diabetic patients, the relative risk reductions associated with the use of thrombolytic therapy and aspirin are at least as large as in non-diabetics and hence absolute benefits are larger.

## **Secondary prevention**

Outcome after revascularisation procedures is worse in diabetic patients and there is some evidence to support coronary artery bypass grafting rather than PTCA.<sup>4</sup>

Given the adverse prognosis of diabetic patients with established CHD, attention to modifiable risk factors and the use of drugs proven to improve outcome is essential. Diabetic patients benefit to a similar degree to non-diabetics from beta-blockers, ACE inhibition and statins post infarction. Aggressive anti-platelet therapy (with the addition of clopidogrel) is beneficial in acute coronary syndromes.

## **Primary Prevention**

Given that CHD risk in people with diabetes (but without overt CHD) is similar to the risk in non-diabetics with established CHD, primary prevention guidelines in the USA recommend treating diabetics as if they already had CHD. Smoking cessation is essential (see Factfile 8/2001). The United Kingdom Prospective Diabetes Study (UK PDS) has demonstrated the benefits of intensive blood pressure control in diabetic patients and a goal of less than 130/85 is optimal. Often combination anti-hypertensive therapy is needed to achieve this, but ACE inhibition may have additional benefits beyond blood pressure reduction.<sup>5</sup>

Cholesterol lowering is also important as demonstrated in the recently published Heart Protection Study which included almost 6,000 people with diabetes. Simvastatin reduced myocardial infarction and other vascular complications by approximately one third. The current British Guidelines on CHD prevention<sup>6</sup> indicate that non-diabetic patients with a 10 year risk of 30% qualify for statin therapy. However, the Heart Protection Study results suggest that those diabetic patients with a predicted risk of 15% over 10 years could be offered statin therapy.

Hyperglycaemia is undoubtedly a risk factor for CHD and there is evidence of benefit from metformin in patients who are overweight. In addition, intensive glycaemic control produces significant reductions in micro-vascular complications, especially those affecting the eyes. Finally, the use of aspirin in primary prevention is widely recommended, although data from clinical trials are lacking.

## References:

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2. Haffner SM, Lehto S, Ronnemaa T, Pyorala K, Laakso M. Mortality from Coronary Heart Disease in subjects with type 2 diabetes and in non-diabetic subjects with and without prior myocardial infarction. *N Engl J Med 1998; 339: 229-34*
3. Almbrand B, Johannesson M, Sjostrand B, Malmberg K, Ryden L. Cost Effectiveness of Intense Insulin Treatment after Acute Myocardial Infarction in Patients with Diabetes Mellitus. Results from the DIGAMI study *Eur Heart J 2000; 21: 733-39*
4. Kurbaan AS. Revascularisation in Diabetics: time to change practise?. *Br J Cardiol 2001; 8: 686-687*
5. Heart Outcomes Prevention Evaluation (HOPE) study investigators. Effects of ramipril on cardiovascular and microvascular outcomes in people with diabetes mellitus: results of the HOPE study and MICRO-HOPE substudy. *Lancet 2000; 355: 253-59*
6. Wood D, Durrington P, Poulter N, McInnes G, Rees A, Wray R. Joint British recommendations on prevention of coronary heart disease in clinical practice. *Heart 1998; 80 supplement 2*

## Further Reading:

A booklet for people with diabetes and their families entitled **Diabetes and Your Heart** is available from the British Heart Foundation at [www.bhf.org.uk](http://www.bhf.org.uk) or by telephone on 020 7935 0185