

## **Managing cardiovascular risk in type 2 diabetes**

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Diabetes is associated with a marked increase (by a factor of two to four) in the risk of coronary heart disease (1-3). Clinically established coronary heart disease itself is associated with an increase in mortality from coronary heart disease by a factor of three to seven, depending on the mode of presentation (4,5). Among patients with type 2 diabetes, the seven year risk of suffering a first myocardial infarction (MI) is similar to that of recurrent MI in non diabetic persons who have had a previous MI (6).

The presence of coronary artery disease is 10 times greater among patients with type 1 diabetes than age and gender matched persons without diabetes (7). Cardio-metabolic risk factors, including insulin resistance and associated manifestations, predispose to increased cardiovascular disease (CVD) in type 2 diabetes.

Glycaemic control with HbA1c targets of less than 7 resulted in 50% reduction in the incidence of CVD in patients with type 1 diabetes enrolled in the DCCT/EDIC study (8). The UKPDS post-trial monitoring results showed continuing benefit of earlier intensive glycaemic control with maintenance of the relative risk reductions for any diabetes related endpoint (21%, P=0.013), myocardial infarction (33%, P=0.005) and all-cause mortality (27%, P=0.002), despite loss of within trial blood glucose and antihyperglycaemic therapy differences – a legacy effect of type 2 diabetes (9).

In contrast, several recent studies (ACCORD (10), VADT (11), ADVANCE (12) have failed to demonstrate CVD risk reduction through intensive glycaemic control in patients with type 2 diabetes. Therefore, the comprehensive approach that recognizes and controls multiple CVD risk factors is the most effective management strategy in patients with diabetes (13).

In all patients with diabetes, cardiovascular risk factors should be assessed at least annually. The risk factors include dyslipidaemia, hypertension, smoking, positive family history of premature coronary disease and the presence of micro or macroalbuminuria. Abnormal risk factors should be treated to recommended targets (14).

Effective life style intervention improves glycaemic control, blood pressure, lipids and associated cardio metabolic risk factors. Preliminary data of the Look AHEAD Study indicate benefits in CVD risk markers associated with weight loss (15). Smoking cessation should be promoted for all patients who are smoking in order to reduce the CVD risk. Patients with diabetes should achieve target lipid levels. In the lipid arm of the ACCORD (10)

trial, addition of fenofibrate to raise HDL and decrease triglycerides in patients taking simvastatin did not reduce the rate of fatal cardiovascular events, non fatal MI or non fatal stroke as compared with simvastatin alone. These results do not support the routine use of combination therapy with fenofibrate and simvastatin to reduce the CVD risk in the majority of high risk patients with type 2 diabetes.

In the patients with type 2 diabetes at high risk for CVD, targeting a systolic blood pressure of less than 120 mmHg, as compared with less than 140 mmHg, did not reduce the rate of a composite primary outcome of fatal and non fatal major CVD events [ACCORD study (10)]. Therefore, patients with diabetes blood pressure target of 130/80 mmHg should be achieved to reduce the CVD risk in diabetes until further evidence is available.

Recent randomised controlled trials have failed to show CVD benefits of aspirin use for primary prevention in patients with diabetes (15). Low dose aspirin for primary prevention is reasonable for adults with diabetes and no previous history of vascular disease who are at increased CVD risk (10 year risk of CVD events more than 10%) and who have no known risk for bleeding. Appropriate candidates include most men over 50 years of age and women aged over 60 years with major risk factors (15). Aspirin is recommended in secondary prevention of diabetes patients with documented CVD events. In patients with known CVD, ACE inhibitor, aspirin and statin therapy should be used to reduce the cardiovascular events.

In conclusion, a comprehensive approach to the prevention and management of heart disease in diabetes patients is advocated. This is best accomplished through a combination of life style modification and targeting of the multiple cardio metabolic risk factors and co morbidities.

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