



Jiten Vora
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Cardiovascular risk reduction – back to reality!

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The casual relationship between elevated plasma cholesterol, including LDL-cholesterol, and risk of cardiovascular disease (CVD) is well established. Evidence for other risk factors, however, is less clear, with current lines of enquiry exploring a number of potential risk factors, such as the interrelationship between ambient glucose and lipid levels. One such study by Gudbjörnsdottir et al (2011) assessed the additive effects of glycaemia and dyslipidaemia, suggesting less additive effects for coronary heart disease (CHD) than previous considered.

Research into risk factors contributing to the cardiovascular (CV) risk specifically in type 2 diabetes has explored novel biomarkers, including those affecting endothelial dysfunction and a procoagulant state (Natarajan et al, 2011), as well as evaluations of treatments for acute coronary syndrome and CV mortality subsequent to a myocardial infarction (MI). The MONICA (Multinational Monitoring of Trends and Determinants in Cardiovascular Disease) study from northern Sweden corroborates that long-term survival after first MI is still markedly reduced in people with type 2 diabetes, especially among women, over an extended study period (Eliasson et al, 2011). Thus, while examination of novel risk factors for CVD in diabetes continues apace, the question has to be asked as to whether currently appropriate therapy is being provided to people with diabetes.

It is well recognised that statin therapy reduces vascular disease in people with type 2 diabetes. This has also been confirmed in a large meta-analysis suggesting that for every 1.0 mmol/L reduction in LDL-cholesterol there was a 20% reduction in CVD events irrespective of baseline LDL-cholesterol levels (Cholesterol Treatment Trialists' Collaborators et al, 2008). These benefits have been similar in people with and without diabetes. The issue, however, is how do we apply these results to clinical practice, despite our extensive searches for alternative CV risk factors?

The Dyslipidaemia International Study, summarised in this edition of *Diabetes Digest* (page 52), examined lipid profiles of 22 063 statin-treated outpatients in both primary- and secondary-care settings from 2954 sites across Europe (Leiter et al, 2011). Of this extensive population, 41% had diabetes. Of those with diabetes, 48% were not meeting cholesterol targets. However, the situation was similar among participants without diabetes, with 58% of them failing to meet cholesterol targets. Likewise, for both people with and without diabetes, only approximately half were at LDL-cholesterol target. Thus, while we continue to explore alternative biochemical and phenotypic risk factors for CVD in people with type 2 diabetes, the application of currently available evidence to clinical practice is, at best, moderate. This may explain some of the residual risk that is identified in such individuals. Clearly, more emphasis should be placed on the application of evidence-based medicine rather than examination of yet more biochemical CV risk factors.

Cholesterol Treatment Trialists' Collaborators, Kearney PM, Blackwell L et al (2008) Efficacy of cholesterol-lowering therapy in 18,686 people with diabetes in 14 randomised trials of statins: a meta-analysis. *Lancet* **371**: 117–25

Eliasson M, Jansson JH, Lundblad D, Näslund U (2011) The disparity between long-term survival in patients with and without diabetes following a first myocardial infarction did not change between 1989 and 2006: an analysis of 6,776 patients in the Northern Sweden MONICA Study. *Diabetologia* **54**: 2538–43

Gudbjörnsdottir S, Eliasson B, Eeg-Olofsson K et al (2011) Additive effects of glycaemia and dyslipidaemia on risk of cardiovascular diseases in type 2 diabetes: an observational study from the Swedish National Diabetes Register. *Diabetologia* **54**: 2544–51

Leiter LA, Lundman P, da Silva PM et al (2011) Persistent lipid abnormalities in statin-treated patients with diabetes mellitus in Europe and Canada: results of the Dyslipidaemia International Study. *Diabet Med* **28**: 1343–51

Natarajan A, Marshall SM, Kesteven PJ et al (2011) Impact of biomarkers for endothelial dysfunction and procoagulant state on 10-year cardiovascular risk in type 2 diabetes. *Diabet Med* **28**: 1201–5

Jiten Vora is Professor of Diabetes, Royal Liverpool University Hospitals, Liverpool.