Cardio DIGEST
The easy way to stay up to date with developments in cardiovascular care

Editorial

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Neuropathy – a predictor of cardiovascular disease?

Cardiovascular disease remains a major cause of death among people with type 2 diabetes. Some recent studies have assessed the impact of cardiac autonomic neuropathy on cardiovascular mortality (Zeigler et al, 2008; Young et al, 2009; Pop-Busui et al, 2010). The recent ACCORD (Action to Control Cardiovascular Risk in Diabetes) trial assessing the effects of cardiac autonomic dysfunction and mortality risk confirmed a positive association between neuropathy on cardiovascular mortality; individuals in that study population with cardiac autonomic neuropathy at baseline were 1.55–2.14-times more likely to die than individuals without cardiac autonomic neuropathy (Pop-Busui et al, 2010). Young et al (2009) also demonstrated that cardiac autonomic neuropathy – particularly in the presence of peripheral neuropathy – is a significant predictor of cardiovascular disease mortality.

However, it should be recognised that the method of assessing cardiac autonomic function varies between these studies. Methods included heart rate, heart rate variability, abnormalities of R–R intervals and QT indices. Variation in these measures has, of course, resulted in differing rates of prevalence in various studies.

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As hypoglycaemia may affect cardiac autonomic function, it may be surmised that hypoglycaemia in the presence of cardiac autonomic neuropathy may further increase mortality, although this combination did not appear to increase mortality in the ACCORD trial (Pop-Busui et al, 2010). It is also possible that a lack of improvement in cardiovascular disease with intensive glycaemic control in those with a duration of diabetes of more than 10 years reflects a subgroup with cardiac autonomic and peripheral neuropathy – and may also highlight a subgroup among whom the rapid lowering of blood glucose is not appropriate.

Recent data demonstrate that cardiac autonomic and peripheral neuropathy are significant risk factors for cardiovascular disease when corrected for other traditional risk factors. Indeed, the contribution of both types of neuropathy places these factors in a similar hazard ratio range as traditional cardiovascular disease risk factors. Thus, such neuropathies are useful in assessing cardiovascular disease risk and prognosis, and warrant more widespread assessment in people with diabetes.

Pop-Busui R, Evans GW, Gerstein HC et al (2010) Effects of cardiac autonomic dysfunction on mortality risk in the Action to Control Cardiovascular Risk in Diabetes (ACCORD) trial. *Diabetes Care* **33**: 1578–84

Young LH, Wackers FJ, Chyun DA et al (2009) Cardiac outcomes after screening for asymptomatic coronary artery disease in patients with type 2 diabetes: the DIAD study: a randomized controlled trial. *JAMA* **301**: 1547–55

Ziegler D, Zentai CP, Perz S et al (2008) Prediction of mortality using measures of cardiac autonomic dysfunction in the diabetic and nondiabetic population: the MONICA/KORA Augsburg Cohort Study. *Diabetes Care* **31**: 556–61

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