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Editorial

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Diabetic retinopathy, cardiovascular events and mortality ... revisited

There is considerable debate regarding the prognostic significance of diabetic retinopathy on rates of cardiovascular (CV) events and death in both type 1 and 2 diabetes. Several studies have linked diabetic retinopathy to increased all-cause CV mortality in type 2 diabetes (Miettinen et al, 1996; van Hecke et al, 2005; Soedamah-Muthu et al, 2008). However, studies among people with type 1 diabetes on these associations remain scarce. Given the wide-spread uptake of retinal screening programmes in the UK, identification of diabetic retinopathy as a potential CV risk factor may assist in the management of CV risk in these people.

In a recent, excellent meta-analysis by Kramer et al (2011), studies that evaluated diabetic retinopathy in people with either type 1 or 2 diabetes and reported total mortality, or fatal and non-fatal CV events (i.e. myocardial infarction, angina pectoris, coronary artery bypass grafting, ischaemic changes under conventional 12-lead electrocardiogram, transient ischaemic attack, non-fatal stroke and peripheral vascular disease) were evaluated.

"... the level of association between diabetic retinopathy and cardiovascular (CV) outcomes reported by Kramer et al (2011) highlights the importance of further evaluation of the contribution of diabetic retinopathy to CV risk stratification in both types 1 and 2 diabetes."

The analysis included 20 studies with data from 19 234 participants. Those participants with type 2 diabetes (n=14 896) and any degree of diabetic retinopathy experienced an increase in all-cause mortality or CV events (odds ratio, 2.34; 95% confidence interval [CI], 1.96–2.80) compared with those without diabetic retinopathy. By contrast, among participants with type 1 diabetes (n=4438) the corresponding odds ratio was even greater at 4.10 (95% CI, 1.50–11.18).

It is widely accepted that the development of diabetic retinopathy is associated with risk factors similar to those for CV disease (i.e. hypertension, hyperglycaemia, hyperlipidaemia and albuminuria), therefore a link between diabetes, retinopathy and CV outcomes may well be expected. However, Kramer et al (2011) found that traditional CV risk factors did not explain the observed associations – indeed, the associations remained after adjustment for traditional CV risk factors. Nevertheless, the level of association between diabetic retinopathy and CV outcomes reported by Kramer et al (2011) highlights the importance of further evaluation of the contribution of diabetic retinopathy to CV risk stratification in both type 1 and 2 diabetes.

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Kramer CK, Rodrigues TC, Canani LH et al (2011) Diabetic retinopathy predicts all-cause mortality and cardiovascular events in both type 1 and 2 diabetes: meta-analysis of observational studies. *Diabetes Care* **34**: 1238–44

Miettinen H, Haffner SM, Lehto S et al (1996) Retinopathy predicts coronary heart disease events in NIDDM patients. *Diabetes Care* **19**: 1445–8

Soedamah-Muthu SS, Chaturvedi N, Witte DR et al (2008) Relationship between risk factors and mortality in type 1 diabetic patients in Europe: the EURODIAB Prospective Complications Study (PCS). *Diabetes Care* **31**: 1360–6

van Hecke MV, Dekker JM, Stehouwer CD et al (2005) Diabetic retinopathy is associated with mortality and cardiovascular disease incidence: the EURODIAB prospective complications study. *Diabetes Care* **28**: 1383–9