

# From the Journals

## Diabetic retinopathy in Malawi

Burgess PI, Allain TJ, Garcia-Finana K, et al. High prevalence in Malawi of sight-threatening retinopathy and visual impairment caused by diabetes: identification of population-specific targets for intervention. *Diabetic Medicine* 2014; 31: 1643-1650

There is surprisingly little accurate information on the prevalence of retinopathy in Africa. Past reports have used very different methods. Most have used direct ophthalmoscopy through undilated pupils, which is notoriously inaccurate and very susceptible to observer error. The point often made in Africa is that even if retinopathy is discovered, what can be done about it? The 'gold standard' treatment for sight-threatening changes (usually maculopathy or proliferative retinopathy) is laser therapy, which is frequently unavailable. A recent study from Blantyre in Malawi provides accurate, good-quality information on the size of the problem. The authors examined 357 diabetic subjects with a median age of 54 years and diabetes duration 4 years. Fundi were examined by digital camera through dilated pupils, and accepted criteria were used for classifying retinopathy. Overall, 50% had retinopathy, 7% had proliferation, 26% maculopathy, and 29% were considered to have sight-threatening disease. These are worrying figures, particularly for a cohort with such a short duration of diabetes. African countries need to be planning effective screening and treatment programmes for this potentially devastating complication of diabetes.

## Analogue insulin debate

Tricco AC, Ashoor HM, Antony J, et al. Safety, effectiveness, and cost-effectiveness of long-acting versus intermediate-acting insulin for patients with type 1 diabetes: a systematic review and network meta-analysis. *Brit Med J* 2014; 3249: g5459 doi: 10.1136

Analogue insulins have, in western countries at least, taken over the majority of the insulin market for both type 1 and type 2 diabetes. However, there is increasing concern over whether their benefits are worth their costs (often about 3 times that of standard human insulins), particularly in type 2 diabetes. For patients with type 1 diabetes, there has been reasonable evidence that analogue long-acting insulins may reduce nocturnal hypoglycaemia risk, and possibly improve HbA1c levels. Good comparative trials of analogue versus human insulins are relatively infrequent however, so a recent systematic review and meta-analysis from Canada is welcome. There were 39 studies analysed, involving 7496 patients with type 1 diabetes. The long-acting insulins used were Glargine (once-daily) or Detemir (once or twice daily), and the intermediate-acting insulin was human isophane (NPH) once or twice daily. The authors concluded that the long-acting analogues were 'probably superior' though the difference was 'small for HbA1c'. Many in resource-limited countries would see these results as showing doubtful cost-effectiveness. Glargine, however, will be coming off patent in the near future, so its price may well drop. We have, therefore, not heard the last of the 'analogue debate'!

## T2DM, glycaemia and cardiovascular risk

Chiasson J-L, Le Lorier J. Glycaemic control, cardiovascular disease and mortality in type 2 diabetes. *Lancet* 2014, 384: 1906-1907

A recent editorial in the *Lancet* comments on a new analysis from the Canadian 'ACCORD' study (*Lancet* 2014, 384: 1936-1941) examining the effect of glycaemic control in type 2 diabetes (T2DM) on the risk of developing ischaemic heart disease (IHD). This is a controversial area - previous studies have shown a clear benefit from good glycaemic control in reducing microvascular complication risk in T2DM, but the effect on large vessel disease has been at least small, and possibly uncertain. The current ADVANCE analysis suggests that tight glycaemic control (HbA1c <7.0%) reduced non-fatal coronary events by about 10 to 15%. The writers of the accompanying editorial draw attention to previous meta-analyses of other papers suggesting a similar, though smaller (9%) reduction in non-fatal IHD events, but no effect on mortality. They also remind us that in certain patients, tight glycaemic control may increase mortality risk. Overall, the results support a policy of optimising glycaemic control in type 2 diabetes, without causing hypoglycaemia, and being particularly cautious in those with particularly high cardiovascular risk. An common problem with studies such as this is that they involve white Caucasian patients, and whether the results are directly transferrable to black African populations (who have a relatively lower risk of atherosclerosis) is uncertain.

## Diabetic neuropathy and the brain

Selvarajah D, Wilkinson ID, Maxwell M, et al. Magnetic resonance neuroimaging study of brain structural differences in diabetic peripheral neuropathy. *Diabetes Care* 2014; 27: 1681-1688

Diabetic peripheral neuropathy has, in the past, been not unreasonably considered to be a disease of peripheral nerves - damaged by microvascular disease, metabolic dysfunction, or both. However, there is growing evidence that in peripheral neuropathy, the central nervous system (CNS) may be also affected. A well-known research group from Sheffield in the UK, have previously shown that the cross-sectional area of the spinal cord is reduced in diabetic patients with neuropathy compared to those without. In their latest study, they report magnetic resonance (MR) brain imaging in 36 subjects with type 1 diabetes - 18 with no neuropathy, 9 with neuropathy, and 9 with painful neuropathy. Additionally, 18 non-diabetic controls were investigated. Brain grey matter volume was significantly lower in neuropathic compared with non-neuropathic subjects ( $p=0.001$ ). Volumes for non-diabetic controls and non-neuropathic diabetic patients were similar, as were volumes between the painful and painless neuropathy groups. The grey matter volume loss was particularly found in regions concerned with somatosensory perception. This is a fascinating study, confirming that diabetes-related neuropathic states involve damage to the central, as well as the peripheral nervous system.