DIABETES

Basal insulin glargine decreases adolescent glycemic variability

Inclusion of basal insulin glargine in multiple daily injection (MDI) regimens decreases glycemic variability in adolescents with type 1 diabetes mellitus (T1DM), according to US researchers.

A key goal in the clinical management of pediatric patients with T1DM is to delay, or even prevent, the onset of diabetic complications: good glycemic control is vital to this objective. The HbA_{1c} level is generally regarded as the 'gold standard' measure of glycemic control; however, some researchers believe that glycemic variability—persistent, wide fluctuations in plasma glucose levels—should also be considered. Studies in adults with T1DM suggest that inclusion of basal insulin glargine in MDI regimens might help to reduce glycemic variability. A multicenter study led by Dr Neil H. White of Washington University School of Medicine, St Louis, MO, has now tested this hypothesis in adolescents with T1DM.

This open-label, 24-week trial included 90 patients aged 9–17 years who were randomly allocated either basal insulin glargine or an intermediate-acting basal insulin as part of their MDI regimen. Interstitial glucose concentrations were measured every 5 min for 3 days by a continuous glucose-monitoring system. Both treatment groups experienced similar reductions in HbA_{1c} levels from baseline. By contrast, patients who received insulin glargine displayed less glycemic variability (as assessed by the SD of glucose levels, mean amplitude of glucose excursion and the M value) than patients who received an intermediate-acting basal insulin did. Furthermore, insulin glargine reduced the amount of time spent at extreme glucose levels.

The authors recognize that patients who agree to undergo continuous glucose monitoring might not be representative of all adolescents with T1DM, in terms of their self-motivation for management of their disease. Nevertheless, their findings suggest that reduced glycemic variability achieved by inclusion of insulin glargine in MDI regimens could contribute to reduced incidence of diabetic complications in adult life.

Vicky Heath

Original article White, N. H. *et al.* Comparison of glycemic variability associated with insulin glargine and intermediate-acting insulin when used as the basal component of multiple daily injections for adolescents with type 1 diabetes. *Diabetes Care* doi:10.2337/dc08-0800 (2009).