Clinical reviews

Our panel of GPs review recent research papers in their specialist areas that may influence the way you practise

Reviewers

Addiction
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Cardiovascular disease
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Diabetes
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Diabetes

Improvement in glycaemic control in type 1 diabetes tails off after five years

In patients with type 1 diabetes, clinically meaningful and sustained HbA_{1c} improvement rarely occurs more than five years after diagnosis, a UK study has found.

The researchers from Birmingham University used data from The Health Improvement Network (THIN), a large dataset derived from UK general practices, to analyse a cohort of type 1 diabetes patients retrospectively.

A total of 4,525 eligible individuals from 617 general practices were identified, diagnosed between 1995 and 2015. All patients had been assigned a Read code for type 1 diabetes when under 40 years of age and had received prescriptions for insulin. However, any patients who were recorded as using oral hypoglycaemic medication were excluded.

The majority were male (60.6%) and the highest proportion were diagnosed between the ages of 10 and 20 years. Median follow-up after diagnosis was five years.

The results were statistically analysed to determine the difference between the HbA_{1c} at various intervals and the HbA_{1c} ten years after diagnosis. The authors defined tracking as a period in which there was no significant difference in HbA_{1c} across adjacent years in comparison with the HbA_{1c} measurement at ten years or more after diagnosis.

The greatest difference in mean HbA_{1c} -7.0 (95% CI: -8.0 to -6.1) mmol/mol (0.6%) was noted when comparing measurements made within the first year following diagnosis with those at ten or more years (the reference category). On average, patients with type 1 diabetes started tracking at around five years after diagnosis, after which their HbA_{1c} level was unlikely to differ significantly from that at ten years. The average tracking HbA_{1c} across the whole population was 75 mmol/mol (9.0%).

The time taken to tracking, and the final value varied with age at diagnosis and gender. Patients with adult onset type 1 diabetes tracked earlier, but at a lower mean HbA_{1c}.

Children aged up to ten years at diagnosis tracked from 6-7 and 8-9 years after diagnosis for boys and girls respectively. For those aged 10-20 years at diagnosis the tracking occurred at 9-10 years in males and 7-8 years in females. The group diagnosed at 20-30 years tracked at 2-3 years in both sexes. In those diagnosed aged 30-40 tracking occurred at 4-5 years in men and 5-6 years in women.

The authors note the difficulty of retrospective analysis, sometimes with incomplete long-term follow-up and the changes that have taken place in HbA_{1c} measurement and insulin formulations over the study period as possible shortcomings of the study.

All clinicians working with type 1 diabetes patients will be familiar with the difficulties in improving glycaemic control over the long term and the tendency to tracking, but this study formalises the phenomenon.

The authors suggest that intensively treating type 1 diabetes patients early in their disease trajectory may influence their risk of complications and improve their long-term control.

'This is the first comprehensive study of the phenomenon of HbA_{1c} tracking and supports the need to optimise glycaemic control early in the natural history of type 1 diabetes. Studies are now needed to explore the mechanisms underlying this phenomenon and how best to optimise tracking in newly diagnosed individuals,' they say.

DR MATTHEW LOCKYER

Nirantharakumar K, Nuredin M, Toulis KA et al. Clinically meaningful and lasting HbA_{1c} improvement rarely occurs after five years of type 1 diabetes: an argument for early, targeted and aggressive intervention following diagnosis. *Diabetologia* 2018;61:1064-70

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