Redefining the remission period in children

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Clinical remission of type 1 diabetes is often overlooked and under-valued by diabetes health carers. This is partly because the patient's excitement at being able to reduce or stop their insulin is tempered by the knowledge that this is usually short-lived, and the hope that they will not be lulled into a sense of false security.

In fact, the remission period seems to indicate some preservation of islet cell function and there is some limited evidence that tight glycaemic control soon after diagnosis is associated with better long-term control. The problem is defining it.

In two recent studies from the USA and Sweden, quite different definitions are used that give fascinating insights into how early patient management varies between centres (and countries). The article by Chase et al (see opposite) uses the fairly traditional definition of an insulin dose of <0.5 U/kg body weight per day independent of HbA_{1c}, for newly-diagnosed diagnosed children between the ages of nine months and 18 years. Although the under-fives had the highest proportion requiring 'remission doses' of insulin, none achieved HbA_{1c} <8 %. When this cut-off for HbA_{1c} was incorporated in the diagnosis, approximately one-third of the older age group entered remission. Compare this with the paper by Schölin et al discussed by Dr Flanagan (see summary on page 150). This study looked at young adults aged 15–34 and found that 43 % went in to remission for a median of eight months when this was defined as an insulin dose <0.3 U/kg per day with an HbA_{1c} in the normal range. What this indicates is that irrespective of any association with body weight or antibody status, there are implied differences in both expectation and management of the person with diabetes.

Defining the remission period in type 1 diabetes in terms of HbA_{1c} as well as insulin dose will be a useful way of benchmarking one centre with another. The future benefits may be considerable.

JOURNAL OF DIABETES AND ITS COMPLICATIONS

Retinopathy and nephropathy: type 1 prepubertal duration significance

Readability	✓ ✓ ✓
Applicability to practice	✓ ✓ ✓ ✓
WOW! factor	✓ ✓ ✓ ✓

1 This study followed-up data taken in 1989 from Danish children and adolescents with type 1 diabetes to determine the effect of prepubertal diabetes duration on elevated albumin excretion rate (AER) and early retinopathy. (Elevated AER was >20µg/min^{-1}.)

2 In 1995, 339 patients were restudied to collect data on physical health, demographics, HbA_{1c}, AER, and retina health (using fundus photography).

3 Prepubertal diabetes onset was seen in 304 patients.

4 Prevalence of any level of retinopathy was 67.7 % in patients over the age of 20, 45.4 % in those aged 16–20, and 17.7 % in the 12–15 age group. Retinopathy was significantly associated with duration of diabetes, more so in patients with pubertal than prepubertal onset, and poor HbA_{1c} control. Time from onset of diabetes to the start of diabetic retinopathy was significantly shorter in those with prepubertal onset (<0.004).

5 Elevated AER prevalence increased to 13 % in 1995 from 4 % in 1989. Elevated AER was only seen in patients aged 15 and over

6 Development of diabetic retinopathy is significantly associated with prepubertal diabetes duration. There was no association between raised AER and diabetes duration.

Olsen BS, Sjølie AK, Hougaard P, et al (2004) The significance of the prepubertal diabetes duration for the development of retinopathy and nephropathy in patients with type 1 diabetes. *Journal of Diabetes and its Complications* **18**: 160–64

PEDIATRIC DIABETES

Clinical remission period in type 1 diabetes

Readability	✓ ✓ ✓ ✓
Applicability to practice	✓ ✓ ✓ ✓
WOW! factor	✓ ✓ ✓

1 Insulin production and ß-cell levels are lower in younger children diagnosed with type 1 diabetes compared to older children.

2 This study aimed to redefine the clinical remission period of children of various ages receiving standard diabetes care.

3 Children diagnosed with type 1 diabetes between 1997 and 2001, with an HbA_{1c} value at diagnosis and at least one other value measured in the ensuing 12 months, were found using an electronic patient records system.

4 The time between diagnosis and daily insulin dosage of <0.5 U/kg body weight per day (the dosage used to define the remission period previously) was evaluated for the 552 participants.

5 Nine months after diagnosis, mean insulin dosages were >0.5 U/kg per day for all age groups. Those over 13 years of age had mean HbA_{1c} values above 8 % after nine months, compared to six months in the 6–9 and 10–12 year age groups. By comparison to the other groups, the five-and-under age group had a higher percentage continuing to receive <0.5 U/kg per day of insulin; however at no time did this group have an HbA_{1c} level <8 %.

6 Younger children have a shorter remission period than older children so attempts to extend remission period are more likely to be successful in older children and if intervention is started as soon as possible after diagnosis. Remission period definition should be altered to include both insulin dose and HbA_{1c} level.

Chase HP, MacKenzie TA, Burdick J, et al (2004) Redefining the clinical remission period in children with type 1 diabetes. *Pediatric Diabetes* **5:** 16–19