



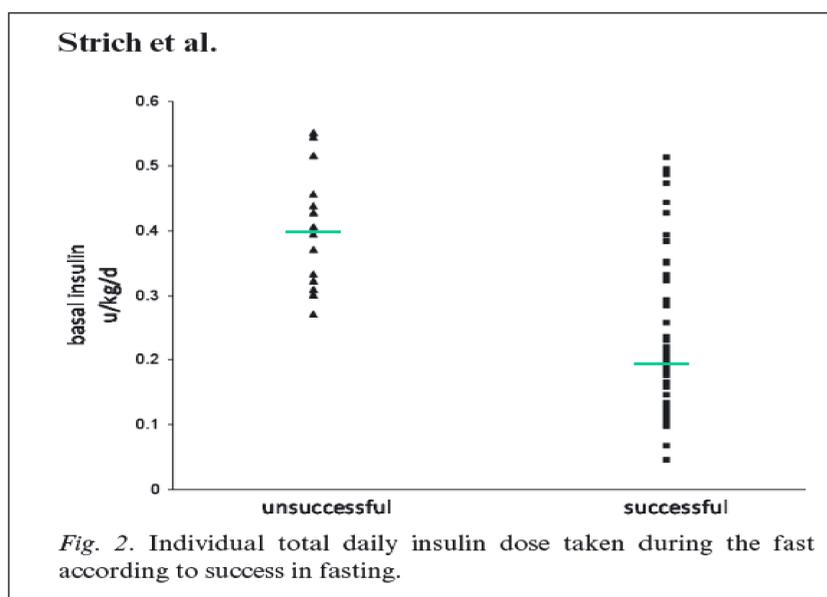
Lower Basal Insulin Dose is associated with Better Control in Type 1 Diabetes Mellitus

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Background

There is no valid evidenced-based recommendation for the optimum basal insulin dose in Type-1 Diabetes Mellitus. We studied this issue previously by evaluating the dose associated with successful fasting (see figure below, from our published article in *Pediatric Diabetes*¹).



In the present study we evaluated optimum dose by looking at the relation between basal insulin dose and HbA1c.

Hypothesis

Treatment with lower basal insulin dose will result in better glycemic control because reliance on bolus adjustments for control is more accurate.

Objective

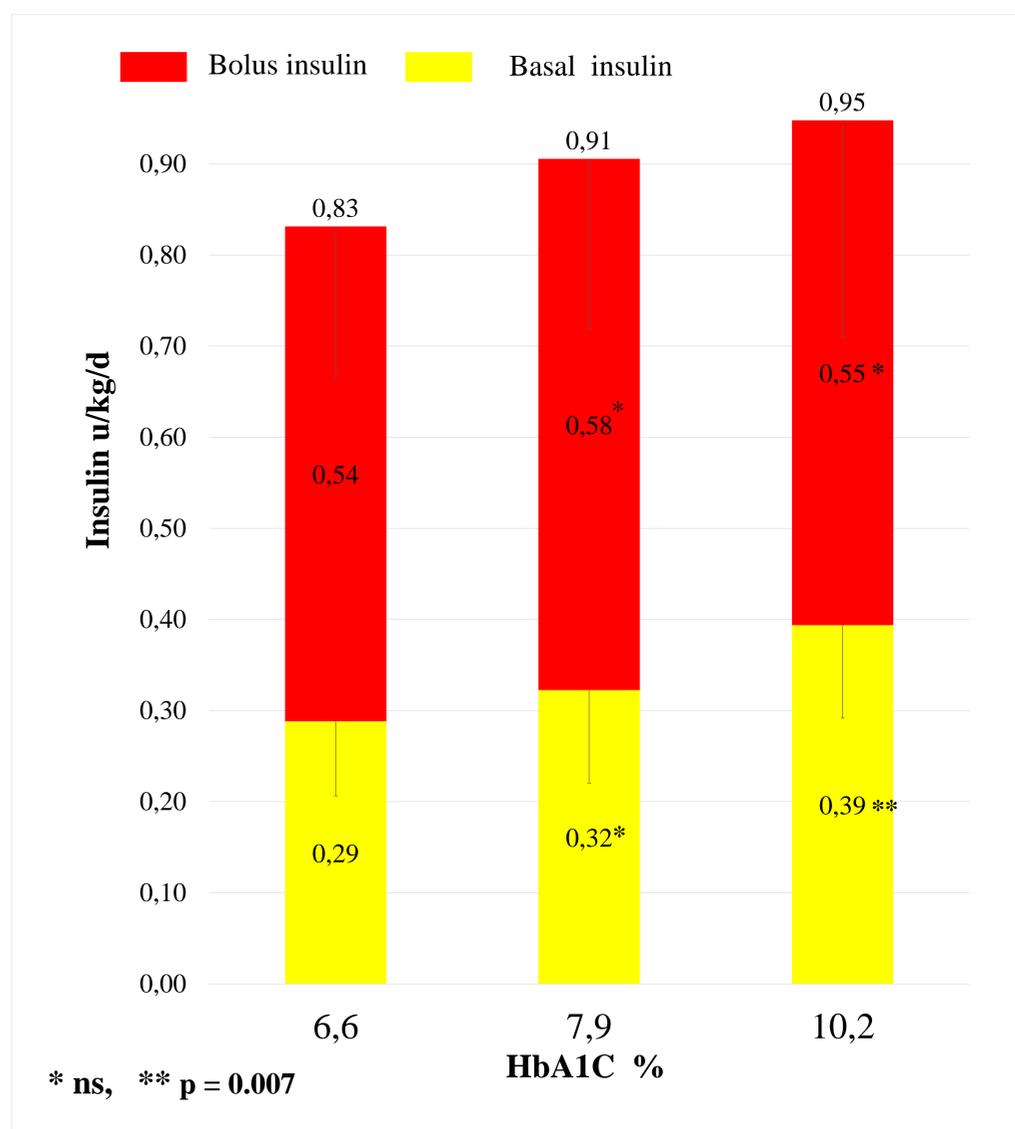
To estimate the basal insulin dose at which optimum glycemic control is achieved with minimal hypoglycemia.

Patients and methods

This was a retrospective study of 89 children and young adults with T1DM (mean age 14.67 ± 4.8 years (range 3-29)). 46 patients were treated with continuous subcutaneous insulin infusion (CSII) and 43 with multiple daily injections (MDI), with glargine as basal insulin. The basal insulin dose of the patients was determined either by downloading data from the insulin pump or noting the dose registered in the chart at the most recent clinic visit. Glucose data were downloaded from patients' glucometers. The mean time between data download and HbA1c determination was 0.9 ± 0.78 months. Patients were grouped by quartiles according to basal insulin dose and then the average HbA1c was calculated for each quartile. The second and third quartiles of insulin dose had similar average HbA1c and are presented together in the graph.

Results

The total daily insulin dose was higher among patients who had higher HbA1c levels. The figure shows that the difference is due to higher doses of basal insulin used by poorly controlled patients. The basal insulin dose of 18 patients who had the lowest HbA1c (average of 6.49 ± 0.34) was 0.28 ± 0.08 u/kg/d.



Conclusions

With lower basal insulin dose, a lower HbA1C was achieved. The optimal basal dose as determined by this study is 0.28 ± 0.08 u/kg/d, similar to the dose that allowed successful fasting at a similar age.

Reference

- Strich D, Teomim R, Gillis D. The basal insulin dose; A lesson from prolonged fasting in young individuals with type 1 diabetes. *Pediatric Diabetes* 2015;16:629-633