Tight control of blood glucose levels reduces the incidence of microvascular events in type 1 diabetes 50% more than does conventional therapy (1) but substantially increases the risk for hypoglycemia (2). Exposure to frequent mild hypoglycemia can induce hypoglycemic unawareness, which, in turn, can increase the risk for severe hypoglycemia occurring without warning symptoms.

Insulin lispro is a rapid-acting insulin analogue, with onset of action within 15 minutes of injection, a peak at 30 to 90 minutes, and a duration of 3 to 5 hours. This profile mimics the normal postprandial insulin response of a person without diabetes far more closely than does injection of regular insulin, which peaks 2 to 4 hours after injection and lasts up to 8 hours.

The study by Heller and colleagues confirms the earlier findings of a similar study by Holleman and colleagues (3) that insulin lispro causes less hypoglycemia, especially at night, than does regular insulin in patients with type 1 diabetes who have near-normal glucose levels. Both studies used a randomized crossover design in which patients received basal bolus insulin therapy, using either preprandial insulin lispro for several months followed by regular insulin for a similar period of time or vice versa. In the study by Heller and colleagues, a period effect occurred where patients who were initially allocated to insulin lispro continued to have a lower incidence of hypoglycemia even after being switched to regular insulin. Such a period effect did not occur in the Holleman study. The only observed difference between the study populations in the Holleman study and this study was the shorter duration of diabetes in the latter study (16 vs 13 y). Taken together, these studies support the use of insulin lispro in patients with type 1 diabetes to optimize glycemic control while minimizing hypoglycemia.

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References