

Letter to the Editor

Insulin degludec: The new standard long acting insulin analogue for people with type 1 diabetes?

Dear Editor;

Two recent studies by Yamamoto *et al.* [1] and Urakami *et al.* [2] provide interesting results on the use of new long-acting insulin analogue, insulin degludec (IDeg) and gave us the opportunity to compare and discuss the data reported with those of our working group in Spain.

IDeg was approved in Spain in January 2016, however during 2015 could be used in hospitals by requesting it as compassionate use in people with Type 1 diabetes mellitus with multiple hypoglycemic events. Between January and June 2015 we transfer to IDeg from insulin glargine (IGlar) as basal-bolus therapy in 50 patients with type 1 diabetes mellitus (mean age 39.8 ± 14.9 years; 21 men/ 29 women; BMI 23.3 ± 2.5 kg/m²; IGlar once daily 38 patients, twice daily 12). At six months after starting IDeg, both fasting plasma glucose and HbA1c levels decreased significantly from 179.6 ± 55.5 mg/dL and 8.28 ± 1.1 % at baseline to 152.9 ± 28.7 mg/dL and 7.88 ± 0.8 % ($p < 0.001$ in both). Overall and nocturnal hypoglycemia rate also decreased significantly from 10.8 ± 5.1 and 3.6 ± 2.3 times/month to 2.1 ± 3.0 and 0.3 ± 0.7 times/month at

6 months after starting IDeg ($p < 0.001$ in both). The daily basal insulin dose was reduced significantly at the end of study period only in patients receiving twice-daily injections of IGlar at baseline (47.8 ± 17.5 vs 39.2 ± 11.7 units, $p < 0.001$, 82% of the baseline value). No differences were found in patients receiving one-daily injection at baseline.

Hypoglycemic episodes are one of the main barriers to achieve desired glycemic targets in people with type 1 diabetes [3].

Yamamoto *et al.* [1] using continuous glucose monitoring demonstrate that IDeg compared with IGlar significantly reduced variability in plasma glucose and the area under the curve for daily blood glucose level <70 mg/dL, with a 25% reduction in IDeg dose.

Urakami *et al.* [2] in a study involving 36 young people with type 1 diabetes, found that switching from IGlar to IDeg, significantly reduced hypoglycemic episodes, overall and nocturnal. The pivotal studies BEGIN [4] showed a 25% decreased in nocturnal hypoglycemia rate. However, they have also found a significant improvement in glycemic control in both plasma glucose and HbA1c.

Our results are consistent with these two studies carried out in real-life conditions. People with type 1 diabetes treated with IDeg has fewer hypoglycemic episodes and can more accurately adjust the dose of basal insulin to the target. Also they have a reduced tendency to hyperglycemia and reduced glycemic variability before the main meals, with less need to correct the dose of bolus insulin. This results in fewer hypoglycemia and better glycemic control. We have not found a significant reduction in basal insulin dose at 6 months of switching to IDeg from IGlar in patients with a single dose of insulin and type 1 diabetes. It could be because our cohort had a poor glycemic control at baseline and higher BMI.

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