A Novel Insulin Combination of Insulin Degludec and Insulin Aspart Achieves a More Stable Overnight Glucose Profile than Insulin Glargine: Results from Continuous Glucose Monitoring in a Proof-of-Concept Trial

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Abstract

Purpose:
Insulin degludec coformulated with insulin aspart (as IDegAsp) can cover 24 h basal insulin and postprandial insulin requirements after a main meal with one injection. We compared glycemic stability following IDegAsp or insulin glargine (IGlar) given before the evening meal in patients with type 2 diabetes.

Methods:
A subset of 112 insulin-naïve type 2 diabetes patients from a randomized, parallel-group trial (IDegAsp versus IGlar, each added to metformin) underwent 72 h continuous interstitial glucose (IG) monitoring after 16 weeks of treatment. End points included mean IG concentrations, 2 h postprandial IG increments and postprandial peak, IG fluctuation (summed area above and below mean IG), within-subject coefficient of variation (day-to-day variation) in mean nocturnal IG, and episodes of low (<3.5 mmol/liter) and high (>10 mmol/liter) IG. Values were derived for the entire 72 h, with the nocturnal interval (0001–0559 h) also assessed.

Results:
The postdinner IG increment observed with IGlar did not occur with IDegAsp [IDegAsp - IGlar, -1.42 (-2.15, -0.70) mmol/liter]. Nocturnal IG fluctuation was 21% lower with IDegAsp [IDegAsp/IGlar, 0.79 (0.66, 0.96) mmol/liter], with 48% fewer nocturnal high IG episodes [ratio IDegAsp/IGlar, 0.52 (0.32, 0.87)].

Conclusions:
IDegAsp given with the evening meal reduces postdinner glucose excursion and provides more stable nocturnal glycemia as compared with IGlar.