

# 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.

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**Abbreviations:** (CGM) continuous interstitial glucose monitors, (CI) confidence interval, (CV) coefficient of variation, (FPG) fasting plasma glucose, (HbA1c) hemoglobin A1c, (IAsp) insulin aspart, (IDeg) insulin degludec, (IDegAsp) insulin degludec and insulin aspart combined, (IG) interstitial glucose, (IGlar) insulin glargine, (OAD) oral antidiabetic drug

**Keywords:** continuous glucose monitoring, glucose excursion, insulin aspart, insulin degludec, insulin glargine

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