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ORIGINAL ARTICLES

No Higher Dose Requirements with Insulin Detemir than Glargine in Type 2 Diabetes: A Crossover, Double-Blind, and Randomized Study Using Continuous Glucose Monitoring

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Abstract

Background:

In a previous publication we reported no difference in the 24-hour glucose response between two basal analog insulins, detemir and glargine, when taken once a day in type 2 diabetes mellitus (T2DM). We now report the dose comparison observed within this randomized, double-blind, crossover study.

Method:

Of 36 patients on basal insulin and other noninsulin treatments, 29 completed the study. Both insulins were given once a day at 8 pm and no food was taken between 6 pm and the following morning. The dose was titrated daily by continuous glucose monitoring (CGM) until the basal glucose (between 12 and 6 am) was <120 mg/dl but not >5% of CGM readings <70 mg/dl. Subjects were then crossed over to the other insulin and titrated similarly.

Results:

Glucose goals were achieved in all subjects. The mean dosage was 0.26 U/kg with very few subjects requiring >0.4 U/kg. Only 2 required an absolute dose less than 10 U/day and all others required more, some considerably higher. Of the 29 subjects, 7 required a greater, 6 a smaller, and 16 the same dose of detemir compared to glargine.

Conclusions:

When given once daily in T2DM and titrated using CGM to the same fasting glucose, there was no difference in the glucose response between basal insulins during the basal titration period (4–10 hours after injection) nor during the entire 24-hour period following the injection. Further, the mean dosage to achieve this glucose goal was the same with both insulins.

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Abbreviations: (BMI) body mass index, (CGM) continuous glucose monitoring, (HbA1c) hemoglobin A1c, (T2DM) type 2 diabetes mellitus

Keywords: continuous glucose monitoring, detemir, glargine, insulin dosing, type 2 diabetes

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