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Endocrinology & Metabolic Syndrome

Faster aspart reduces glycemic variability and increases time on target glycemia in type 1 diabetic patients with sensor-augmented insulin pump

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Abstract

Aim: Comparing the effect of Faster Aspart insulin (Fiasp®) with previous insulin analogues (aspart, lispro, glulisine) in type 1 diabetic patients with sensor-augmented pump therapy.

Methods: Patients with the Medtronic MINIMED™ 670G Sensor-Augmented Insulin Pump System (able to automatically adjust background insulin every 5 minutes) were switched from previous insulin to Faster Aspart. Data from the previous 3 months and 3 months afterwards were obtained from the CareLink™ Personal Software and compared by Student's paired t-test or ANOVA as appropriate. Satisfaction data were obtained by analogic scales. Data are given as Mean±S.D.

Results: 29 patients with type 1 diabetes mellitus (age 22.3±5.9 years, 69% female) were switched to Faster Aspart from aspart (55%), lispro (35%), and glulisine (10%). Active Insulin Time was shortened by 30 min. The glycemic variability coefficient (100 x mean glucose/S.D.) was significantly reduced from 45.8±11.3% to 33.6+95% (P=0.0257). Time on glucose <70 mg/dl was significantly reduced from 4.1±1.5% to 3.2+1.8% (P=0.0436), Time on glucose >180 mg/dL was reduced from 11.67±3.29% to 8.6+2.7% (P=0.0326), HbA1C decreased from 7.2±0.9% to 6.7+0.8% (P=0.083). On a 0–10 visual analogical scale, patient satisfaction was significantly increased from 6.6±1.9 to 8.5+1.3% (P=0.003). No unexpected adverse effects were reported.

Conclusion: In this open, uncontrolled study, switching from previous insulin analogues to Faster Aspart was well-tolerated and significantly reduced glycemic variability and time on hypoglycemia and hyperglycemia; patient satisfaction was significantly increased, and a trend for lower HbA1C was found. We conclude that Faster Aspart is an advantageous alternative to the classic fast-acting insulin analogues for patients on sensor-augmented insulin pump therapy.

Biography

Francisco J. Martinez-Martin completed his MD at the Complutensis University (Madrid, Spain) in 1985 and his Endocrinology Degree at the University Hospital Ramón y Cajal (Madrid, Spain) in 1990, From 1990 to 1993 he worked as a Research Fellow in the Mayo Clinic Department of Physiology where he developed a model of insulin resistance and hypertension in high-fructose fed dogs. From 1994 to the present he works as an Endocrinologist in the Hospital Universitario de Gran Canaria Doctor Negrin, and from 2012 also in the Hospital Universitario San Roque, both in Las Palmas de Gran Canaria, Spain. He has been the principal investigator in several clinical trials, contributed over 150 publications, and participated in the Board of Directors of several scientific associations related with endocrinology, diabetes and hypertension.

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