Insulin Degludec Is Superior to Sitagliptin in Improving Glycemic Control in Uncontrolled Patients with Type 2 Diabetes on Oral Agents

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Insulin degludec (IDeg) is superior to sitagliptin (SITA) in improving glycemic control in patients with type 2 diabetes mellitus (T2DM) uncontrolled by oral antidiabetic drugs (OADs). Athena Philis-Tsimikas, MD, Scripps Whittier Diabetes Institute, La Jolla, California, USA, discussed the results of the comparison of NN1250 with Sitagliptin in Subjects with Type 2 Diabetes Never Treated with Insulin [BEGIN®: EARLY; NCT01046110] trial that compared basal insulin with a dipeptidyl peptidase-4 inhibitor as an add-on to OADs.

IDeg is a basal insulin analogue that provides an ultra-long-acting and flat action profile potentially enabling less stringent timing of dose for glycemic control in T2DM patients. In this 26-week, randomized (1:1), open-label trial, insulin-naïve patients with T2DM inadequately controlled with OADs (metformin/sulfonylurea/pioglitazone) were randomly assigned to receive IDeg once daily plus 1 to 2 OADs (n=229) or SITA plus 1 to 2 OADs (n=229). Eligibility criteria included ≥18 years of age, a diagnosis of T2DM for ≥6 months, treatment with OADs for ≥3 months, HbA1C from 7.5% to 11%, and body mass index ≤40 kg/m^2.

Patients were ~55 years of age with a mean diabetes duration of ~7.7 years, mean baseline HbA1C of 8.9%, and mean fasting plasma glucose (FPG) of 9.7 mmol/L. IDeg was administered once daily between wake up and bedtime based on each patient's preference. Subjects could also vary the timing of their dose throughout the study. The starting dose was 10 U using a treat-to-target algorithm aiming for a pre-breakfast plasma glucose of 4.0 to 4.9 mmol/L. Oral SITA (100 mg) was administered once daily.

The completion rate was 76% in both treatment arms. At 26 weeks, IDeg was superior to SITA in reducing HbA1C (difference 0.43%; p<0.001) and FPG (difference –2.17 mmol/L; p<0.001). IDeg patients had greater weight gain compared with those taking SITA, which was weight neutral (difference 2.75 kg; p<0.05). There was no statistically significant difference in the incidence of nocturnal confirmed hypoglycemia between IDeg (12.8%) and SITA (5.7%). Incidence of overall confirmed hypoglycemia was higher with IDeg than with SITA (42.5% vs 12.7%; p<0.0001). One severe episode was reported with IDeg; none with SITA. The rate of adverse events was low for both groups. Most subjects chose to administer their IDeg in the morning.

IDeg dosed at any time of day was superior to SITA in controlling HbA1C and FPG. While overall rates of increased weight and hypoglycemia were higher with IDeg, there was no statistically significant difference in severe or nocturnal hypoglycemia between the IDeg and SITA groups. Initiating IDeg in insulin-naïve patients was shown to be an effective and well-tolerated alternative to an additional OAD in patients with T2DM, and it offers the possibility of varying the timing of daily dosing.

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