

005. Type 2 diabetic patients and patients on basal supported oral therapy mainly benefit from introduction of insulin degludec

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Purpose

Decreased glucovariability of new insulins is one of the main reasons of better glycaemic regulation, reduced incidence of hypoglycaemias and body weight stability, parameters important in cardiovascular risk (CVR) reduction. Though latent autoimmune diabetes of the adults (LADA) may appear with diabetic ketoacidosis, it may also present in a mild non-insulin-requiring form. The potential value of screening patients with type 2 diabetes (DM2) for diabetes-associated autoantibodies to identify those with LADA is emphasized by similar clinical features, possibly worse glucose control than in DM2, and needs for a dedicated therapeutic strategy. The aim was to compare the efficacy and safety of long-acting insulin degludec (DEG) in patients with DM2 and LADA after different therapy regimens.

Methods

After insulin DEG was introduced, 117 diabetic patients treated in our outpatient department were assigned to study groups according to the type of diabetes (DM2 and LADA) and previous therapy regimens [premix insulins 2-3 times daily (Gr 1), basal bolus (BB) therapy (Gr 2) and oral hypoglycaemic agents (OHAs) (Gr 3)] and studied during a 6-mo follow-up. After changing premix insulins to BB therapy, DEG was introduced as basal insulin (BI); in patients on BB therapy previous BI was changed to DEG, whereas in patients on OHAs, DEG was added as a basal support (BOT). DM types were distinguished by determining islet cell (ICA) and glutamic acid decarboxylase autoantibodies (GADA). Body mass index (BMI), glycated haemoglobin (HbA1c), estimated average glucose (eAG), fasting blood glucose (FBG), lipids, albumin/creatinine ratio (ACR), glomerular filtration rate (GFR) and BI and bolus doses were determined at the beginning and at the end of the follow-up period.

Results

At the beginning of the study significant differences were observed in BMI ($p=0.02$), HbA1c ($p<0.001$), FBG ($p=0.014$), eAG ($p<0.001$), triglycerides (TG) ($p=0.041$) and ACR ($p=0.041$) among patient groups according to previous therapy regimens (ANOVA), whereas groups according to DM type differed significantly in BMI ($p=0.024$), TG ($p<0.01$), high-density lipoprotein ($p=0.017$), ACR ($p=0.005$) and GFR ($p<0.001$) (Mann Whitney test). Six months after introduction of DEG, a statistically significant reduction in HbA1c (7.76 ± 1.09 vs. 7.01 ± 0.83), FBG (10.14 ± 2.97 vs. 8.26 ± 2.5) and eAG (9.76 ± 1.73 vs. 8.61 ± 1.3) (all $p<0.001$) was observed (T paired test). According to previous therapy, mean HbA1c values were significantly reduced in all three groups ($p<0.001$), with greater reduction in Gr 3 (8.82 ± 0.96 vs. 7.16 ± 1.2) compared to Gr 1 (7.91 ± 0.98 vs. 6.91 ± 0.76) and Gr 2 (7.35 ± 0.95 vs. 7.00 ± 0.73). Mean FBG values were significantly reduced in Gr 1 (11.37 ± 2.6 vs. 8.3 ± 1.42) ($p<0.001$) and Gr 3 (11.26 ± 3.92 vs. 8.25 ± 3.15), but not in Gr 2 (9.14 ± 2.47 vs. 8.24 ± 2.75). Mean eAG values were significantly reduced in all three groups (Gr 1: 9.88 ± 1.42 vs. 8.42 ± 1.2 ; Gr 2: 9.15 ± 1.58 vs. 8.55 ± 1.21 ; and Gr 3: 11.44 ± 1.54 vs. 9.04 ± 1.69) (all $p<0.001$), with greatest reduction in Gr 3 (Repeated measure ANOVA). According to DM type, mean HbA1c and eAG values were significantly reduced in both groups, with

greater reduction in DM2 (HbA1c: 7.91 ± 1.07 vs. 7.0 ± 0.8 ; $p < 0.001$) compared to LADA. (HbA1c: 7.51 ± 1.18 vs. 6.98 ± 0.85 ; $p = 0.03$ and eAG 9.35 ± 1.9 vs. 8.53 ± 1.36 ; $p = 0.04$). Mean values of FBG (10.47 ± 2.89 vs. 8.2 ± 2.07) ($p < 0.001$) and TG (2.1 ± 1.58 vs. 1.91 ± 1.38) ($p = 0.03$) were significantly reduced in DM2, but not in LADA. Less hypoglycaemic events were observed in 41 patients, mostly those with DM2 (28/41) and on BB therapy (33/41) after DEG introduction, with no increase in hypoglycaemia incidence in 76 of the 117 studied patients.

Conclusions

Reduction in HbA1c, FBG and eAG after DEG introduction, especially in patients on BOT, suggests the benefit of early insulinization for the prevention of late diabetic complications. DM2 patients attained better HbA1c and eAG reduction during follow-up as compared with LADA. Reduction in hypoglycaemia incidence after insulin DEG introduction suggests its beneficial effect on CVR reduction.