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001. Cardioprotective effect of liraglutide is amplified with anti-inflammatory and decreased brain natriuretic peptide levels, in addition to glycemia and body weight reduction.

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Purpose

Besides an impact on glycemic control and body weight, incretins emerged as important factors in cardiovascular (CV) protection in diabetes. Dipeptidyl peptidase-4 (DPP-4) inhibitors cleave multiple peptides, which in turn have direct effect on the heart and blood vessels. This distinguishes them in action when compared to GLP-1 agonists. The aim was to compare the impact of DPP-4 inhibitors GLP-1 agonist liraglutide on CV risk factors.

Methods

A total of 442 type 2 diabetics were studied during a 6-month period and assigned into three study groups treated with DPP-4 inhibitors: linagliptin (Group [Gr] 1; n=158), vildagliptin (Gr 2; n=150) and with GLP-1 agonist liraglutide (Gr 3; n=134). Adiponectin (ApN), brain natriuretic peptide (BNP), high specific C-reactive protein (hsCRP), blood pressure (BP), glycated hemoglobin (HbA1c) and other CVR factors were determined at the beginning and at the end of the follow-up period. Differences for the analyzed variables between baseline values and values after 6 months were tested by t paired test.

Results

Hs-CRP mean values at the beginning of the study were 3.86±3.64, 2.67±2.52 and 5.31±2.37 in the Gr 1, 2, 3 respectively, and were significantly reduced by 0.63 (95% CI: 0.1-1.15; p=0.018), 1.35 (95% CI: -0.26-2.97; p=0.09) and 1.71 (95% CI: 0.57-2.84; p=0.007) on average in all three groups, with greater reduction in Gr 3 in comparison with Gr 2. HbA1c mean values at the beginning of the study were 8.01±0.79, 7.36±0.87 and 8.01±0.95 in the Gr 1, 2, 3 respectively, and were significantly reduced by 0.94 (95% CI: 0.73-1.15; p<0.01), 0.69 (95% CI: 0.05-1.32; p=0.04) and 1.15(95% CI: 0.35-1.95; p<0.01) on average, with no difference in reduction between groups. BNP and body mass index (BMI) were significantly reduced from baseline (30.5±14.6 and 39.3±4.5) by 10.7 (95% CI: 4.73-16.61; p=0.002) and 2.65 (95% CI: 1.35-3.94; p<0.01) on average in Gr 3, whereas reduction in SBP was significant from baseline (137.5±16.9) in Gr 2 by 9.0 (95% CI: -0.05-18.55). Postprandial C-peptide, gamma-glutamyl transpeptidase (GGT) and triglycerides were reduced in Gr 3 by -0.32 (95% CI: -0.65-0.01; p=0.058), 8.42(95% CI: -0.15-16.9; p=0.053) and 0.67 (95% CI: -0.09-1.43; p=0.079) on average but these reductions were not significant. Increase in amylase was not observed in studied groups.

Conclusions

Except HbA1c and BMI reduction liraglutide proved more e cent in hs-CRP and BNP reduction in comparison with DPP-4 inhibitors. Treatment with liraglutide may exert cardioprotective benefits not only due to its glycemic control and body weight reduction but also through its pleiotropic effect.