

LETTER TO THE EDITOR ΓΡΑΜΜΑ ΠΡΟΣ ΤΟΝ ΕΚΔΟΤΗ

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The effect of DPP-4 inhibitors therapy on the left atrial volume index in patients with type 2 diabetes mellitus

The left atrial volume index (LAVI) is part of cardiac remodeling in a variety of cardiovascular diseases and a strong predictor of cardiovascular morbidity and mortality.¹ The aim of the present study was to estimate the effect of dipeptidyl-peptidase-4 inhibitors (DPP-4i) on LAVI in patients with type 2 diabetes mellitus (T2D).

Study was made of 95 patients with T2D but without known cardiovascular disease (55 males), mean age (\pm standard deviation) 65.1 \pm 9.1 years, HbA_{1c} 6.4 \pm 0.8%, body-mass index (BMI) 29.21 \pm 5.4 kg/m², duration of diabetes 8.1 \pm 4.9 years. The patients were receiving either metformin monotherapy (40 patients, group A) or metformin plus DPP-4i (55 patients, group B) for at least 6 months. All the study patients underwent full clinical examination and ultrasound (US) examination of the heart, and a fasting venous blood sample was taken. Of the study participants, 63.8% had arterial hypertension, 78.9% dyslipidemia, 10.6% retinopathy and 17.0% neuropathy, and 13.7% were smokers. The patients were divided according to risk, with the criterion LAVI \geq 32 mL/m².

LAVI \geq 32 mL/m² was found in 14 patients (17.3%). The mean LAVI did not differ between the two study groups (group A: 25.1 \pm 6.0 mL/m² vs group B: 25.9 \pm 7.1 mL/m², $p=0.58$). Multivariate regression analysis, controlling for age, sex, BMI, duration of T2D, HbA_{1c}, smoking, neuropathy, retinopathy, DPP-4i and metformin therapy, C-reactive protein, creatinine clearance, uric acid, low density lipoprotein- and high density lipoprotein-cholesterol, showed that LAVI was positively associated with hypertension (beta=0.39, $p=0.008$), white blood cell count (beta=0.262, $p=0.09$), and serum triglyceride level (beta=0.42, $p=0.07$).

No significant association was demonstrated between LAVI and DPP-4i therapy.

The results of this study showed that treatment with DPP-4i has a neutral effect on LAVI. Despite a growing body of evidence, it still remains unclear whether DPP-4i improves left ventricle (LV) diastolic function in patients with T2D, and, if so, whether the effect is attributable to the attenuation of postprandial hyperglycemia or to a direct cardiac effect of DPP-4i. Using heart failure-model rats, dos Santos and colleagues reported that sitagliptin administered for 6 weeks produced a significant improvement in cardiac contraction and reduction in LV end-diastolic pressure and chamber stiffness.²

Hypertension, higher white blood cell count and triglyceride level were the only determinants of LAVI in the present study. In a recent study, diabetic microvascular complications were shown to be associated with increased LAVI in patients with well-controlled T2D who had preserved systolic function and were free from ischemic heart disease, independently of multiple potential confounders.³ It has also been shown that excess visceral fat accompanied by adipocyte dysfunction might play a greater role than glycemic control in the development of diastolic dysfunction and LV hypertrophy in T2D.⁴ Finally, the Hoorn study showed that glucose status and arterial distensibility were independently associated with more severe LV diastolic dysfunction and with deterioration of LV diastolic dysfunction.⁵

In conclusion, the results of the present study show that treatment with DPP-4 inhibitors has a neutral effect on LAVI. Further studies are needed to explain the role of DPP-4i in cardiac remodeling.

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ΠΕΡΙΛΗΨΗ

Επίδραση της θεραπείας με αναστολείς DPP-4 στον δείκτη όγκου του αριστερού κόλπου σε ασθενείς με σακχαρώδη διαβήτη τύπου 2

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