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Sitagliptin alleviated myocardial remodeling of left ventricle and improved cardiac diastolic dysfunction in diabetic rats

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Objective: Sitagliptin, one of the DPP-IV inhibitors, plays its biological role via improving the serum levels of GLP-1. Hence, we sought to determine the effects of sitagliptin on myocardial inflammation, collagen metabolism, lipid content and myocardial apoptosis in diabetic rats.

Methods: The type 2 diabetic models were induced by small dosage streptozotocin on the basis of high-fat diet. The characteristics of the diabetic rats were evaluated by ECG, echocardiography and blood analysis. Cardiac inflammation, fibrosis, cardiomyocyte density, lipids accumulation, and RIP3 related to apoptosis were detected by histopathologic analysis, RT-PCR and Western-blot analysis to evaluate the effects of sitagliptin on myocardial remodeling of left ventricle.

Results: Myocardial hypertrophy or apoptosis, inflammation, lipids accumulation, myocardial fibrosis, elevated collagen contents, RIP3 overexpression, and left ventricular dysfunction were detected in diabetic rats. Furthermore, sitagliptin could down-regulate the overexpression of RIP3 and alleviate cellular apoptosis in the myocardial tissues. Sitagliptin could significantly improve left ventricular systolic pressure (LVSP), +dp/dt *max*, reduce the E/E'*ratio*, left ventricular end diastolic pressure (LVEDP), -dp/dt max and Tauin diabetic rats.

Conclusions: Sitagliptin might exert a myocardial protective effect by inhibiting apoptosis, inflammation, lipids accumulation and myocardial fibrosis, implicating its potential role for the improvement of left ventricular function.

Biography

Yu-Sheng Liu has completed his MD from Shandong University School of Medicine. He is an attending Physician of clinical general cardiology, specializing in heart failure and echocardiology. He has published more than 6 papers in SCI journals and has been serving as an Editorial Board Member of repute.

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