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Cardio-protective effect of Salvianic acid A in db/db mice with elevated homo-cysteine level

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Cardiovascular disease is the top death cause in people with diabetes, particularly in individuals with elevated Homo-cysteine (Hcy) level. Left ventricular hypertrophy and endothelial dysfunction are critical signs of heart disease and vascular disorder respectively in diabetics. Salvianic Acid A (SAA) is a major active ingredient extracted from a typical traditional Chinese medicine applied in treatment of cardiovascular disease. In this study, we investigated the protective effects of SAA on left ventricular hypertrophy and endothelial dysfunction in db/db mice with elevated Hcy level and to decipher whether the cardio-protective effects of SAA involve the modulation of methylation potential and improvement of redox status in liver. Our results suggested that chronic administration of SAA suspended left ventricular hypertrophy within the intervention period (2.9% increase of left ventricular mass in SAA-treated group compared to 49.0% increase of left ventricular mass in group without treatment) and ameliorated endothelial dysfunction in db/db mice (improve endothelial-dependent vasorelaxation by 42.8% in SAA-treated group compared to group without SAA treatment). The acute vaso-relaxant effects of SAA were also assessed in *ex vivo* assay. Besides, the serum Hcy level in group with SAA treatment was found significantly decreased 40.8% compared to diabetes group without SAA. These observed cardio-protective effects of SAA are probably due to improved redox status induced by the antioxidant effect of SAA itself and to the increased production of glutathione (23.2% increase in SAA-treated group compared to group without SAA treatment) via up-regulation of trans-sulfuration pathway during the Hcy metabolism in liver.

Biography

Lei Gao has completed his Master's degree of Medicine at Shandong University of Traditional Chinese Medicine, China in 2011. He was awarded the Eurasia-Pacific-Ernst Mach Scholarships in 2016 and is currently a PhD candidate.

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