

Ischemia postconditioning attenuates myocardial ischemia reperfusion injury by up-regulating cardiac adiponectin expression in mice

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Ischemic heart disease (IHD) remains the leading cause of mortality and morbidity in diabetic patients. Ischemia postconditioning (IPostC) has been shown to be an effective way in combating myocardial ischemia-reperfusion injury, but the cardioprotective effects of IPostC are compromised or diminished in patients with diabetes, a metabolic disease that is associated with reduced levels of adiponectin (APN). Adiponectin (APN) is a protein that is secreted primarily from adipose tissue, which confers cardioprotection by enhancing myocardial nitric oxide production, a key mediator in IPostC cardioprotection, however, its role in IPostC mediated cardioprotection has not been investigated. The aims of the present study were to determine the role of APN in IPostC mediated cardioprotective effect and investigate the underlying molecular mechanisms. Wild-type (WT) and APN knockout (AKO) mice were subjected to 30 min coronary artery ligation followed by 2 hours of reperfusion, at the absent or present of IPostC achieved by 3 episodes of 10s reperfusion and 10s re-occlusion immediately after ischemia. Myocardial functions were assessed by pressure volume (PV) conductance system. Post-ischemic myocardial infarct size was higher in AKO relative to WT, which was associated with significant reduction of myocardial p-eNOS expression and end systolic PV relation, a reliable measure of ventricular systolic function, in AKO. In contrast, IPostC significantly reduced infarct size and improved end systolic PV relation, together with significant increase in expression of myocardial APN, in WT but not in AKO. It is concluded that enhancement of myocardial APN may represent a key mechanism by which IPostC confers cardioprotection.

Biography

Haobo Li is currently a Ph.D. candidate in the University of Hong Kong, his research mainly focuses on cardioprotection of postconditioning on myocardial ischemia reperfusion, particularly, of diabetic hearts. His work has been published in *Journal of Diabetes & Metabolism*, and *Diabetes*. He has orally presented his work at 8th International Symposium on Healthy Aging, and has been invited to present his work at the Experimental Biology 2013 conference at Boston, USA, April 2013.

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