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**POSTCONDITIONING ATTENUATES THE MYOCARDIAL INJURY INDUCED BY ISCHAEMIA/REPERFUSION IN THE HYPERLIPIDEMIC RATS**

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**Objectives** To investigate the effects of postconditioning (PostC) on the myocardial ischaemia/reperfusion injury in the hyperlipidemic rats.

**Methods** 60 Sprague-Dawley (SD) rats were randomly divided into Sham, I/R+normal diet, I/R+Vehicle+HC diet, I/R+PostC+HC diet groups. The levels of plasma lipid was examined by chromatometry, and the area at risk (AAR) and infarct size were evaluated by TTC staining, the AAR was expressed as a percentage of the left ventricular area (AAR/LV). The plasma creatine kinase (CK) activity was also measured. Myocardial apoptosis examined by Caspase-3 activity assay; the mRNA and the protein expression of HIF-1 $\alpha$  and iNOS were assessed by RT-PCR and Western blot.

**Results** The infarct size in Control group was greatly increased than that in Sham group both in normal diet and hyperlipidaemia ( $33.38 \pm 1.4\%$  vs  $39.54 \pm 1.16\%$ ,  $p < 0.01$ ). Hyperlipidaemia reinforced the increase of plasma creatine kinase (CK) activity by I/R. ( $0.56 \pm 0.06$  vs  $0.47 \pm 0.04$ ,  $p < 0.01$ ), and further augmented myocardial apoptosis induced by I/R. The activity of Caspase-3 significantly increased in Control group compared to Sham group. However, hyperlipidaemia further augmented the increase of Caspase-3 activity induced by I/R ( $4.63 \pm 0.42$  vs  $2.31 \pm 0.27$ ,  $p < 0.01$ ). Postconditioning attenuated the myocardial infarct size in I/R rats by decreasing plasma CK activity ( $0.38 \pm 0.06$  vs  $0.43 \pm 0.05$ ,  $p < 0.05$ ), and ameliorated Caspase-3 activity ( $1.72 \pm 0.16$  vs  $2.43 \pm 0.25$ ,  $p < 0.01$ ). In normal diet rats, I/R extremely increased the HIF-1 $\alpha$  protein level, while postconditioning further enhanced the increase of HIF-1 $\alpha$  protein expression induced by I/R. But under the hyperlipidemic condition, HIF-1 $\alpha$  protein level was much higher than that in normal diet groups. While postconditioning also markedly increased HIF-1 $\alpha$  level. The mRNA level of HIF-1 $\alpha$  were no significant changes in all groups. But the iNOS expression both in mRNA and in protein level were increased in hyperlipidemic rats.

**Conclusions** Postconditioning attenuates the myocardial injury induced by ischaemia/reperfusion in hyperlipidemic rats by increasing the expression of HIF-1 $\alpha$ , which may be related to iNOS-cGMP signalling pathway.