LIRAGLUTIDE PRETREATMENT SIGNIFICANTLY ATTENUATES ISOPRENALINE-INDUCED MYOCARDIAL INJURY IN RATS

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Liraglutide (LIR) is an agonist of the glucagon-like peptide-1 receptor (GLP-1). Besides its primary effect in glucoregulation, LIR has been shown to have cardioprotective, antioxidative and antiinflammatory properties. The aim of the study was to investigate the effects of LIR in the isoprenaline (ISO) model of myocardial injury (MI).
ISO-induced MI in Wistar rats was induced by two subcutaneous applications of ISO 85 mg/kg of body weight on two consecutive days, 24 h apart. The experimental animals were divided into 4 groups: control (C) group (receiving saline for 10 days + saline on days 9 and 10), I group (saline for 10 days + ISO on days 9 and 10), L group (LIR for 10 days + saline on days 9 and 10) and L+I group (LIR for 10 days + ISO on days 9 and 10). The parameters of MI and oxidative stress were evaluated histologically, immunohistochemically and biochemically.
Pre-treatment with LIR significantly attenuated cardiotoxicity and oxidative stress markers induced by ISO. The histopathological findings showed significant level of MI after exposure to ISO that was significantly reduced in the group pretreated with LIR. Decreased expression of cleaved caspase-3 was also found in this group, as well as the decreased concentration of high-sensitive troponin I (hsTnI) which was reduced up to 3.35 times.
The results of the present study suggest that pretreatment with LIR significantly attenuates ISO-induced MI in rats.

Keywords: Myocardial injury, liraglutide, cardioprotection