PUNICA GRANATUM PEEL EXTRACT SIGNIFICANTLY ATTENUATES THE ISOPRENALINE-INDUCED MYOCARDIAL INJURY IN RATS

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Pomegranate peel extract (PoPEx) is a rich source of bioactive polyphenols with beneficial anti-inflammatory and antioxidative effects. In the present study, isoprenaline-induced myocardial injury (MI) model was used to explore the cardioprotective and antioxidative effects of PoPEx. The aim of this study was to investigate the effects of PoPEx pretreatment on isoprenaline-induced MI.
Wistar rats were used in this experiment. The MI was induced by injecting 85 mg/kg of isoprenaline, on two consecutive days. In order to alleviate the effects of isoprenaline, the PoPEx 100 mg/kg was administered by gavage as a pretreatment for 14 days. The experimental animals were divided into 4 groups: I group (saline for 14 days + ISO on days 13 and 14), P group (PoPEx for 14 days + saline on days 13 and 14) and P+I group (PoPEx for 14 days + ISO on days 13 and 14), while in the control (C) group both, PoPEx and isoprenalin were replaced by saline. The biochemical parameters of MI, as well as markers of oxidative stress, and histological analysis were evaluated.
Isoprenaline-induced MI was demonstrated by increased levels of high-sensitivity troponin I (hsTnl), lipids, AST, homocysteine and decreased level of LDH. Pretreatment with PoPEx significantly attenuated the ISO induced changes in lipid status, as well as the levels of glucose, homocysteine, high sensitive troponin I (hsTnl), AST, ALT and LDH. Additionally, the pretreatment with PoPEx significantly ameliorated the changes in oxidative stress markers in cardiac tissue homogenates such as superoxide dismutase, glutathione and catalase. The histopathologic analysis confirmed the cardioprotective effects of PoPEx pretreatment in ISO-induced MI.
Pretreatment with PoPEx showed significant cardioprotective effects by attenuating humoral and morphological signs of MI induced by ISO.

Keywords: Pomegranate peel extract, isoprenaline, myocardial injury, cardioprotection