عنوان مقاله:

The effects of crocin, insulin and their co-administration on the heart function and pathology in streptozotocin-induced diabetic rats

محل انتشار:

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خلاصه مقاله:

Objective: Crocinisa saffron constituent with a potent anti-oxidant activity. The present study investigated the effects of crocin and insulin treatments (alone or in combination) on cardiac function and pathology in diabetic rats. Materials and Methods: Diabetes was induced by intraperitoneal (i.p.) injection of streptozotocin (STZ, 50 mg/kg). Thereafter, crocin (5, 10 and 20 mg/kg, i.p.), subcutaneous (s.c.) injection of insulin (4 IU/kg) and their combination were administeredfor eight weeks. Blood glucose level andwhole heart and body weights were measured. Electrocardiography (ECG) was carried out using the lead II. Serum concentrations of lactate dehydrogenase (LDH), creatine kinase-MB isoenzyme (CK-MB), and the heart tissue malodialdehyde (MDA) and superoxide dismutase (SOD) contents were determined. The heart lesions were evaluated by light microscopy. Results: STZ decreased body weight and increased whole heart weight/body weight ratio. It also decreased heart rate, and increased RR and QT intervals and T wave amplitude. STZ increased blood glucose, serum LDH andCK-MB levels, augmentedheart tissue MDA content, decreased SOD content of heart tissue, and produced hemorrhages, degeneration, interstitial edema, and fibroblastic proliferation in the heart tissue. Crocin (10 and 20 mg/kg, i.p.), insulin (4 IU/kg, s.c.) and their combination (5 mg/kg of crocin with 4 IU/kg of insulin) treatments recovered the ECG, biochemical and histopathological changes induced by STZ. Conclusion: The results showed cardioprotective effects of crocin and insulin in STZ-induced diabetic rats. The antioxidant and anti-hyperglycemic properties of crocin and insulin may be involved in their cardioprotective actions.

کلمات کلیدی:

Crocin, Insulin, Diabetic cardiomyopathy, Rats