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Cardioprotective role of sesamol - A molecular pharmacological study

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Background: Sesamol is lignin obtained from sesame oil with potent antioxidant property. Sesamol has been reported as cardioprotective molecule in various experimental models by reducing oxidative stress and augment endogenous antioxidants.

Purpose: The present study was designed to investigate the effect and protective mechanism of sesamol on myocardial ischemic reperfusion injury in experimental rats.

Method: Sesamol was administered to Wistar albino rats (200-220 g) in two different doses (n=6), by intra peritoneal route at a dose of 25 mg/kg b.w. (S1) and 50 mg/kg b.w (S2) daily for thirty days. Control and Sesamol treated rat hearts were subjected to in-vitro global ischemic reperfusion injury (5 min perfusion, 9 min nofl ow and 12 min reperfusion) by langendorff apparatus. The injured cardiac tissues were removed for microscopic examination after reperfusion. The plasma concentrations of nitric oxide (NO) and endothelin (ET-1), inflammatory cytokine tumor necrosis factor alpha and tissue concentration of endogenous antioxidants were estimated.

Results: Sesamol improved cardiac function and plasma nitric oxide (NO) and reduced infarct size after myocardial ischemic reperfusion injury. Sesamol significantly attenuated tumor necrosis factor- α expression, endothelin (ET-1) and increased endogenous antioxidant activity.

Conclusions: Sesamol shows significant myocardial protection against experimentally induced myocardial ischemic reperfusion injury. The protective role via augmentation of antioxidant enzymes, inhibiting endothelial cell injury and inhibition of inflammatory cytokines.

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