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Cardioprotective Effects of Gallic Acid on an Isoprenaline - Induced Myocardial Infarction Rat Model

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## Abstract

The use of antioxidants to protect against a wide range of human disease, including ischemic heart disease, has moved to the forefront in cardiovascular research. Gallic acid has shown promising effects against oxidative stress-induced disease; however, its effect in ischemic heart disease has not been well-studied. We designed the current work to investigate the potential protective effect of gallic acid against isoprenaline (ISO)-induced myocardial infarction (MI). Rats were injected subcutaneously with ISO, 100 mg/kg for 2 days, to induce MI. Gallic acid treated rats received 15 mg/kg gallic acid orally for 10 days prior to ISO injection. The histopathological examination of the Hematoxylin and Eosin-stained heart sections from the ISO treated rats shows karyopyknosis, hyper eosinophilia, loss of striation, infiltration of macrophage in the interstitium, and thrombosis of the blood vessels, all of which indicate the induction of MI. In addition, ISO treatment significantly increased the plasma level of malondialdehyde and troponin-I, as well as the activity of alanine aminotransferase, lactate dehydrogenase, and creatine kinase, compared to untreated controls. Pretreatment with gallic acid significantly attenuated the ISO-induced biochemical and histopathological changes, compared to untreated controls. Our results show that ISO induced oxidative stress-mediated MI, and that gallic acid protects the rat heart from MI, at least in part, through antioxidant mechanisms. © 2021 Wolters Kluwer Medknow Publications. All rights reserved.

## Author keywords

Cardioprotective; gallic acid; myocardial infarction; oxidative stress

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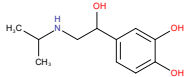
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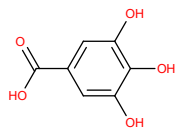
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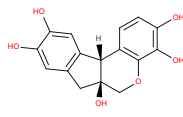
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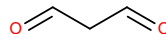
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