CHAPTER 34

MEDICAL SCIENCES
PHARMACOLOGY

Doctoral Theses

309. MOHD. SHAHID
Effect of Remote Preconditioning on Myocardial Reperfusion Injury.
Supervisors : Dr. K. K. Sharma and Dr. M. Fahim
Th 15375

Abstract

Demonstrates the protective effect of hind limb ischemia-induced preconditioning and to explore the possible mediators of remote preconditioning against myocardial ischemia/reperfusion injury. A new model of remote preconditoning by brief occlusion and reperfusion of femoral arteries was developed. To investigate the possible factors, which mediate preconditioning of the heart. A powerful protection against myocardial ischemia/reperfusion injury by RPC was obtained which is comparable to the previous classical IPC and other models of RPC. Protection was observed not only in terms of infarct size but also in myocardial mechanical and serum biochemical markers. Thus, brief occlusion and reperfusion of femoral arteries induces a strong preconditioning effect against myocardial ischemia/reperfusion injury in rats. This cardioprotective effect is mediated by the opening of mitoK^{+}_{ATP} channels and increased NO synthesis. NO appears to be working upstream and is acting via activation of mito K^{+}_{ATP} channels in this form of RPC. Indeed, exgenous NO donor, L-arginine could also trigger preconditioning of the heart which is as potent as established classical IPC and other forms of RPC. However, more systematic studies are required for information regarding the detailed molecular signaling cascade and temporal profile of RPC and minimum stimulus of ischemia of remote organ to induce potent cardioprotection.

Contents

310. MOHAMMAD TAUSEEF

Evaluation of the Mechanism of Action of Aspirin as a Cardioprotective Agent in Experimentally Induced Hypercholesterolemic Rats

Supervisors : Dr. K. K. Sharma and Dr. M. Fahim

Th 15374

Abstract

Testes the hypothesis that aspirin by its antioxidant effect, improves haemodynamic profile, baroreflex sensititvity and endothelial function in rat model of hypercholesterolemia. Hypercholesterolemia was induced in Wistar rats by feeding 1% cholesterol rich diet for 10 weeks. Demonstrates the vasculoendothelial dysfunction during experimetnally induced hypercholesterolemia in rats. Hypercholesterolemic rats showed significant increase in total cholesterol, low-density lipoprotein-cholesterol, very low-density lipoprotein-cholesterol and atherogenic index, and significant decrease in high-density lipoprotein cholesterol. Significant rise in blood pressure, heart rate and attenuation of baroreflex sensitivity were found in hypercholesterolemic rat. Furthermore, hypercholesterolemic rats has also hown endothelial dysfunction and decreased sensitivity of β_2 adrenoceptors in isolated aortic tissues, and free radical generation, evident by a significant increase in serum lipid peroxidation and significant reduction in serum reduced glutathione content. The study demonstrated that aspirin improves baroreflex response, prevents the rise blood pressure and heart rate, restore endothelial function and β_2 adrenoceptors sensitivity possibly by reducing sympathetic activity due to its antioxidant effect in experimentally induced hypercholesterolemic rats.

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311. RISHI PAL

Experimental Studies on the Role of Free Radicals in Emotional and Environmental Stress.

Supervisors : Dr. Prof. A. Ray and Prof. B.D. Banerjee

Th 15437

Abstract

Studies Pharmacological, Biochemical and Immunological tecniques to evalute the possible role of free redicals and anti-oxidant defense mechanisms in emotional and environmental (xenobiotic) stress in experimental animals.

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