

# **The Possible Role of Nicorandil in Experimentally Induced Atherosclerosis Versus Atorvastatin in Rats**

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# التأثير المحتمل للنيكوراندیل على تصلب الشرايين المحدث معملياً في الجرذان مقابل الأتورفاستاتين

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**Abstract:** The comparative study of the atheroprotective effect of nicorandil in adose of 2 mg/kg/day versus atorvastatin in a dose of 10 mg/kg/day orally was carried out on high fat/high cholesterol diet (HF/HCD) induced atherosclerosis in rats as a model.

The degree of protection was assessed biochemically by measuring variations in serum total cholesterol (TC), triglycerides (TG), low density lipoprotein-cholesterol (LDL-C), very low density lipoproteins-cholesterol (VLDL-C), atherogenic index (AI) along with superoxide dismutase (SOD), reduced glutathione (GSH) and malondialdehyde (MDA) and pharmacologically by estimating endothelial vascular reactivity on isolated aortic rings in rats, arterial systolic blood pressure and ECG changes including heart rate, P wave amplitude, PR interval, QRS duration, ST segment and T wave and histopathologically through measuring aortic wall thickness and atherosclerosis scoring system.

Prophylactic and therapeutic nicorandil elicited a significant protection against atherosclerosis in rats, prophylactic nicorandil showed protective effect against atherosclerosis more than the therapeutic nicorandil.

In conclusion, the present study has shown that nicorandil exhibits antihyperlipidemic, antihypertensive and cardioprotective effects. The mechanism could be attributed to its releasing nitric oxide property, inhibitory effect on oxidative stress as evident from its antioxidant activity and vasodilatative effect through cGMP formation and opening of K<sup>+</sup> channels in variety of cells.

**KEY WORDS:** Nicorandil - Atorvastatin -Atherosclerosis





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