

Original Article

Antioxidant activity of simvastatin prevents L-arginine-induced acute toxicity of pancreas

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Received January 18, 2013; Accepted April 26, 2013; Epub May 27, 2013; Published June 15, 2013

Abstract: L-arginine is a semi-essential amino acid that found naturally in food. It has been shown that administration of large doses of L-arginine can induce acute pancreatitis. In the present study, we evaluated if simvastatin, a 3-hydroxy-methylglutaryl coenzyme A reductase (HMG-CoA reductase) inhibitor, might prevent acute pancreatitis induced by L-arginine. Thirty male Wistar rats were randomly allocated to five groups. Groups were: DMSO, saline, simvastatin, L-arginine, and simvastatin with L-arginine. Twenty four hours after the last dose, rats were sacrificed and their blood was collected from heart for biochemical analysis. Pancreatic tissues were obtained for analysis of glutathione peroxidase (GPx), glutathione s-transferase (GST), lipid peroxide levels (MDA) and histology analysis was examined for pancreas. Results indicated that treatment with simvastatin significantly enhanced levels of GPx and GST and decreased lipid peroxide levels induced by L-arginine compared to the vehicle. Moreover, histopathological analysis further confirmed that administration of simvastatin relatively prevented pancreatic acinar cell damage compared to those animals received L-arginine alone. These findings pointed out the protective role of simvastatin against acute pancreatitis induced by high doses of L-arginine. (IJPPP1301003).

Keywords: L-arginine, acute pancreatitis, simvastatin, lipid peroxidation, antioxidant enzymes

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