World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:10, No:05, 2016

Carvacrol Attenuates Lung Injury in Rats with Severe Acute Pancreatitis

Authors : Salim Cerig, Fatime Geyikoglu, Pınar Akpulat, Suat Colak, Hasan Turkez, Murat Bakir, Mirkhalil Hosseinigouzdagani, Kubra Koc

Abstract : This study was designed to evaluate whether carvacrol (CAR) could provide protection against lung injury by acute pancreatitis development. The rats were randomized into groups to receive (I) no therapy; (II) 50 μg/kg cerulein at 1h intervals by four intraperitoneal injections (i.p.); (III) 50, 100 and 200 mg/kg CAR by one i.p.; and (IV) cerulein+CAR after 2h of cerulein injection. 12h later, serum samples were obtained to assess pancreatic function the lipase and amylase values. The animals were euthanized and lung samples were excised. The specimens were stained with hematoxylin-eosin (H&E), periodic acid–Schif (PAS), Mallory's trichrome and amyloid. Additionally, oxidative DNA damage was determined by measuring as increases in 8-hydroxy-deoxyguanosine (8-OH-dG) adducts. The results showed that the serum activity of lipase and amylase in AP rats were significantly reduced after the therapy (p<0.05). We also found that the 100 mg/kg dose of CAR significantly decreased 8-OH-dG levels. Moreover, the severe pathological findings in the lung such as necrosis, inflammation, congestion, fibrosis, and thickened alveolar septum were attenuated in the AP+CAR groups when compared with AP group. Finally, the magnitude of the protective effect on lung is certain, and CAR is an effective therapy for lung injury caused by AP.

Keywords : antioxidant activity, acute pancreatitis, carvacrol, experimental, lung injury, oxidative DNA damage
Conference Title : ICMBB 2016 : International Conference on Molecular Biology and Biomedicine
Conference Location : Tokyo, Japan
Conference Dates : May 26-27, 2016