Green Tea Extract: Its Potential Protective Effect on Bleomycin Induced lung Injuries in Rats

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Abstract

Green tea , is a beverage that is popular worldwide. Polyphenols in green tea have been receiving attention for the maintenance of human health . The contribution of antioxidant activity in preventing diseases caused by oxidative stress has been focused upon. Lung fibrosis is a common side effect of the chemotherapeutic agent, bleomycin. Current evidence suggests that reactive oxygen species may play a key role in the development of lung fibrosis. The present work studied the effect of green tea extract on bleomycin–induced lung fibrosis in rats. Animals were divided into three groups: (1) Saline control group; (2) bleomycin group in which rats were injected with bleomycin (15mg/kg,i.p.) three times a week for four weeks; (3) bleomycin and green tea group in which green tea extract was given to rats (100mg/kg/day, p.o) a week prior to bleomycin and daily during bleomycin injections for 4 weeks until the end of the experiment. Bleomycin–induced pulmonary injury and lung fibrosis that was indicated by increased lung hydroxyproline content, elevated nitric oxide synthase, myeoloperoxidase (MPO), platelet activating factor (PAF), tumor necrosis factor α (TNF_α), transforming growth factor 1β (TGF1β) and angiotensin converting enzyme (ACE) activity in lung tissues. On the other hand, bleomycin induced a reduction in reduced glutathione concentration (GSH). Moreover, bleomycin resulted in a severe histological changes in lung tissues revealed as lymphocytes and neutrophils infiltration, increased collagen deposition and fibrosis. Co-administration of bleomycin and green tea extract reduced bleomycin–induced lung injury as evaluated by the significant reduction in hydroxyproline content, nitric oxide synthase activity, levels of MPO, PAF & TNF-α & ACE in lung tissues. Furthermore. green tea extract ameliorated bleomycin–induced reduction in GSH concentration. Finally, histological evidences supported the ability of green tea extract to attenuate bleomycin–induced lung fibrosis and consolidation. Thus, the finding of the present study provide that green tea may serve as a novel target for potential therapeutic treatment of lung fibrosis.



Biography

Professor Azza El-Medany has completed her PhD at age of 32 years from Alexandria University and postdoctoral studies from Alexandria University College of Medicine. She is a Prof. of pharmacology &Vice head of department of pharmacology, College of Medicine , KSU. She published more than 40 papers in the areas of GIT, CVS, Natural products & toxicological researches in reputed journals and serving as a memberships of a number of Professional Bodies, was a speaker in a number of international conferences, the last ones in Singapore , Japan , Brazil & USA, Malysia . She is a recipient of special awards in scientific research & teaching.

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