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Green tea extract: Its potential protective effect on bleomycin induced lung injuries in rats

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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 (15 mg/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 (100 mg/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, Myeloperoxidase (MPO), Platelet Activating Factor (PAF), Tumor Necrosis Factor α (TNF- α), Transforming Growth Factor 1 β (TGF1 β) 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 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 extracts 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 findings of the present study provide that green tea may serve as a novel target for potential therapeutic treatment of lung fibrosis.

Biography

Azza El-Medany completed her PhD from Alexandria University and Postdoctoral studies from Alexandria University College of Medicine. She is a Professor 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 Member of a number of professional bodies, was a Speaker in a number of international conferences like the ones in Singapore, Japan, Brazil & USA. She is a recipient of Special Awards in scientific research & teaching.

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