Oral Abstracts

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SILYMARIN ATTENUATES PARAQUAT-INDUCED LUNG INJURY VIA NRF2-MEDIATED PATHWAY *IN VIVO* AND *IN VITRO*

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The present study aims to investigate the impacts and mechanisms of silymarin on paraquat (PQ)-induced lung injury in vivo and in vitro. In in vivo experiments, a total of 32 male Sprague-Dawley (SD) rats were randomly divided into 4 groups. The rats were sacrificed on day 3 after PQ intoxication. Histopathological changes in lung tissue were examined using HE and Masson's trichrome staining. Biomarkers of neutrophil activation, pulmonary oedema, pulmonary fibrosis, lung permeability and oxidative stress were detected. Several proinflammatory mediators and antioxidant related proteins were measured. In in vitro experiments, A549 cells were transfected with Nrf2 special siRNA to investigate the roles of Nrf2. Our results showed that silymarin administration abated PQ-induced lung histopathologic changes, decreased inflammatory cell infiltration and lung wet weight/dry weight (W/D) ratio, suppressed myeloperoxidase (MPO) activity and nitric oxide (NO)/inducible nitric oxide synthases (iNOS) expression, downregulated malondialdehyde (MDA) and hydroxyproline (HYP) levels, and reduced total protein concentration and the release of proinflammatory mediators. Meanwhile, treatment with silymarin upregulated the expression levels of nuclear factor-erythroid-2-related factor 2 (Nrf2), heme oxygenase-1 (HO-1) and NAD(P)H:quinone oxidoreductase-1(NQO1). However, the addition of Nrf2 siRNA reduced the expression of Nrf2-mediated antioxidant protein HO-1 and thus reversed the renalprotective effects of silymarin against oxidative stress and inflammatory response. These results suggest that silymarin may exert protective effects against PQ-induced lung injury. Its mechanisms were associated with Nrf2-mediated pathway. Therefore, silymarin may be a potential therapeutic drug for lung injury.