

Oral Communication Abstract

Presentation No. **OC7-09** (Abstract Submission No. 2449)

Oral Communications 7 Sep. 3 (Fri), 17:00-19:00

Protective and anti-inflammatory effects of N-Acetylcysteine in pulmonary artery hypertension model of rat

Rahul Kumar, Anjali Kanojia
Department of Zoology, J K College, India

Objectives: Pulmonary arterial hypertension (PAH) is a syndrome characterized by pulmonary vascular remodeling and vasoconstriction, leading to increased pulmonary vascular resistance, right ventricular pressure overload and, eventually, to right ventricular failure and premature death. Aim of present study was to elucidate the protective effect of the antioxidant N-Acetylcysteine (NAC) in pulmonary arterial hypertension (PAH) rats and its underlying mechanism.

Methods: 48 male albino Wistar rats were randomly divided into sham group, PAH group and NAC group. Rats in PAH group were subcutaneously injected with 60 mg/kg monocrotaline once to establish the model of PAH. After animal procedures, hemodynamic parameters and right ventricular hypertrophy indexes were determined in rats. Pathological lesions in lung tissues were observed by hematoxylin and eosin (H&E) staining. Finally, Western blot was conducted to detect the protein expressions of nuclear factor-kappa B (NF- κ B), tumor necrosis factor- α (TNF- α), interleukin-1 β (IL-1 β), vascular cell adhesion molecule 1 (VCAM-1), intercellular cell adhesion molecule-1 (ICAM-1), and monocyte chemotactic protein-1 (MCP-1) in lung tissues of rats.

Results: Compared with sham group, mean pulmonary artery pressure (mPAP) and right ventricular systolic pressure (RVSP) were significantly elevated in rats of PAH group ($p < 0.05$). On the contrary, mPAP and RVSP in rats of NAC group were both significantly lower than PAH group ($p < 0.05$). NAC treatment attenuated PAH-induced pathological lesions in lung tissues. ELISA results elucidated that NAC treatment significantly decreased serum levels of TGF- β , TNF- α , IL-1 β , and IL-6. In addition, Western blot results demonstrated that protein levels of NF- κ B, TNF- α , IL-1 β , VCAM-1, ICAM-1, and MCP-1 in NAC group were remarkably lower than those of PAH group.

Conclusions: Our study demonstrated that NAC attenuated PAH in rats through its anti-inflammatory effects and by inhibiting NF- κ B/ TNF- α pathway. Hence, the present data may offer novel targets and promising pharmacological perspectives for treating monocrotaline-induced PAH.