

عنوان مقاله:

Effects of alamandine on monocrotaline-induced pulmonary hypertension in rats

محل انتشار:

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خلاصه مقاله:

Objective(s): Pulmonary arterial hypertension (PAH) is a severe and often fatal disease that is associated with oxidative stress and inflammation. Alamandine, a component of the renin-angiotensin system, known for its antioxidative, anti-inflammatory, and antifibrotic effects, has been investigated in this study to determine if it has protective effects against PAH induced by monocrotaline (MCT) and if these effects are associated with oxidative stress, inflammatory factors, and inducible nitric oxide synthase (iNOS). **Materials and Methods:** Rats were administered MCT (۴۰ mg/kg) on day ۰ and then received alamandine (۵۰ mg/kg/day) via mini-osmotic pumps for ۲۱ days starting one day later. Hemodynamic parameters, electrocardiograms, superoxide dismutase (SOD), catalase (CAT), malondialdehyde (MDA), inflammatory cytokines (TNF- α , IL-1 β , and NF- κ B), iNOS, and MrgD receptor expression in lung tissue were evaluated at the end of the ۲۱-day period. The MrgD receptor was quantified through immunofluorescent staining, and the histopathology of lung tissues was evaluated using hematoxylin and eosin staining. **Results:** The results showed that alamandine treatment significantly improved hemodynamic parameters, oxidative stress markers, inflammatory factors, and electrocardiographic data. Furthermore, treatment with alamandine decreased the levels of iNOS. Additionally, alamandine treatment decreased the expression levels of MrgD receptors in the lung tissue of MCT-induced PAH. **Conclusion:** In summary, this study indicates that alamandine has protective effects against monocrotaline-induced PAH, and these effects may be attributed to the inhibition of oxidative stress, inflammatory parameters, and iNOS.

کلمات کلیدی:

Alamandine, Hypertension, Monocrotaline, Oxidative stress, Pulmonary, Renin–angiotensin system

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