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عنوان مقاله:

LOXL۲ silencing suppresses angiotensin II-induced cardiac hypertrophy through the EMT process and TGF-β۱/Smad۳/NF-κB pathway

محل انتشار:

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خلاصه مقاله:

Objective(s): Atrial fibrillation (AF) is a common arrhythmia with atrial myocyte hypertrophy linked with stroke, heart failure, and increased mortality. Lysyl oxidase-like ۲ (LOXL۲) involves the cross-linking of collagen in the extracellular matrix (ECM). In the present study, we investigated the roles and underlying mechanisms of LOXL۲ on cardiomyocyte hypertrophy. Materials and Methods: The expression of LOXL۲ mRNA and protein were detected in angiotensin II (Ang II) treated rat cardiomyocytes H۹c۲ by RT-qPCR and western blot. Small interfering RNA (siRNA) mediated LOXL۲ gene silencing was used to evaluate cardiac hypertrophy and related markers. Also, the protein expression of EMT markers and Smad۳/NF-κB pathway was determined by western blot. Results: Ang II significantly increased mRNA and protein expressions of LOXL۲ and increased mRNA levels of myocardial hypertrophy markers, including ANP, BNP, and β-MHC in H۹c۲ cells. Silencing of LOXL۲ significantly suppressed Ang II-induced hypertrophy and reversed the increase in ANP, BNP, and β-MHC mRNA levels. Also, EMT markers' expressions, as evidenced by increased E-cadherin and decreased vimentin, α-smooth muscle actin (α-SMA), fibroblast-specific protein (FSP), and collagen ۱A۱. Mechanistically, we found that LOXL۲ silencing suppressed protein expressions of TGF-β۱, p-Smad۳, and p-NF-κB in Ang II-stimulated H۹c۲ cells. LOXL۲ silencing also attenuated Ang II-induced increased expression and content of proinflammatory cytokines IL-۱β (H) and TNF-α. Conclusion: Our data speculated that LOXL۲ might be a potential contributing factor to Ang II-induced cardiac hypertrophy, and TGF-β۱/Smad۳/NF-κB is involved in a signal axis and

.might be a potential strategy in treating cardiac hypertrophy

کلمات کلیدی:

Angiotensin II, Atrial fibrillation, Epithelial-mesenchymal - transition, Hypertrophy, LOXL۲ protein

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