

論 文 要 旨

Different Characteristics of Mitochondrial Dynamics-related miRNAs on the Hemodynamics of Pulmonary Artery Hypertension and Chronic Thromboembolic Pulmonary Hypertension

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Background: Mitochondria are dynamic organelles that undergo fission or fusion. These mitochondrial dynamics are reported to be associated with pulmonary hypertension (PH). PH is divided into 5 groups, including pulmonary artery hypertension (PAH) and chronic thromboembolic pulmonary hypertension (CTEPH), based on its pathogenesis. However, it is still unknown whether and how miRNAs related to mitochondrial dynamics (MD) affect PAH and CTEPH.

Methods: We investigated patients who underwent right heart catheterization between October 2016 and January 2019. Out of 34 PH patients, 12 were diagnosed with PAH, and 22 were diagnosed with CTEPH. In addition, there were 30 patients diagnosed with left heart disease. We enrolled the 34 PH patients as the PH group and 30 left heart disease patients as the control group.

Results: Among MD-related miRNAs, the circulating levels of miR-140-3p were higher, and those of miR-485-5p were lower in the PH group than in the control group ($p<0.01$), suggesting that miRNAs inducing mitochondrial fission are related to PH. The miR-140-3p levels in the PAH and CTEPH groups were higher than those in the control group ($p<0.01$). The levels of miR-140-3p and miR-485-5p in the PAH group correlated with pulmonary vascular resistance ($r=0.582$, $p=0.046$) and cardiac index ($r=-0.36$, $p=0.04$), respectively. The miR-485-5p levels in the CTEPH group correlated with right atrium pressure ($r=-0.456$, $p=0.049$).

Conclusion: MD-related miRNAs levels change to induce fission and are closely related to the hemodynamics of PAH and CTEPH.