

Effect of Exercise on Right Ventricle Inflammation in a Rat Model of Severe Monocrotaline-Induced Pulmonary Arterial Hypertension

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Pulmonary arterial hypertension (PAH) is a devastating disease of progressive remodeling of small and mid-size pulmonary arteries that leads to elevated pulmonary pressure. The work of the right heart is increased due to the elevated pulmonary pressures and can lead to maladaptive cardiac wall hypertrophy, right heart failure and then eventually death. Whether exercise-induced cardiac stress also promotes detrimental right ventricle (RV) inflammation in PAH has not been thoroughly examined. The purpose of this study is to determine if treadmill exercise at low relative intensity in a rat model of severe PAH without promoting greater RV inflammation. Adult male Sprague-Dawley rats were injected with monocrotaline (60mg/kg, subcutaneously, n=14) or saline (healthy controls, n=4). RV tissue was obtained from these rats following a 6 week, 5 times/week treadmill training program at a low intensity of 50% of measured aerobic capacity (VO₂max) and compared to tissue obtained from sedentary counterparts. RV immunofluorescent staining for CD45, a lymphocyte marker, was performed to evaluate the inflammatory response due to chronic exercise training. The experiment is still underway and the expected result is that there is no greater exercised induced RV inflammation in PAH rats compared to healthy rats.

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