Pulmonary arterial hypertension (PAH) is characterized by increased pulmonary vascular resistance leading to right heart failure. Despite an improved prognosis, a great majority of PAH patients remain symptomatic due to high levels of dyspnea. The 6-minute walking test (6MWT) is commonly used as a primary endpoint in randomized controlled trials and assessed by the self-paced 6-minute walk test (6MWT). This test is thought to be near-maximal in PAH. The ESWT might be a useful tool in PAH. However, its reproducibility and responsiveness are needed to be assessed.

**ABSTRACT**

**OBJECTIVE**

To compare the cardiorespiratory response, exercise symptoms and induced muscular fatigue between a self-paced and an externally paced exercise test in pulmonary arterial hypertension (PAH).

**METHODS**

Twenty-one stable PAH patients (mean age 54(15); mean pulmonary arterial pressure (mPAP) 16(4) mm Hg) were included in the study. When they practiced it as a slow and an externally paced exercise test called the endocrine test, right heart failure (mPAP) in a randomized order. Cardiopulmonary parameters were monitored using a portable telemetric device. Dyspnea and non-voluntary quadriceps muscle strength by magnetic stimulation of the femoral nerve were measured before and after each test.

**RESULTS**

The mean distances walked were 447 (96) and 517 (267) meters for the ESWT and 6MWT respectively and correlated with each other (R = 0.49, p = 0.03). The ESWT induced a more important physiological demand as compared to the 6MWT. As the 6MWT pulse and respiratory exchange ratios, ventilatory equivalent for O2 and CO2, and dyspnea were not different between the two tests (p = 0.05). Finally, the 6MWT and ESWT induced identical quadriceps muscle fatigue.

**CONCLUSION**

The ESWT induced a more important physiological demand as compared to the 6MWT. As the ESWT suffers from a ceiling effect and limited responsiveness in PAH, the ESWT might be a useful physical fitness and follow-up tool in PAH. However, its reproducibility and responsiveness are needed to be assessed.