

THE EFFICACY OF PULMONARY VASODILATORS IN PATIENTS WITH CHRONIC THROMBOEMBOLIC PULMONARY HYPERTENSION

H. Maki, M. Hatano, S. Minatsuki, H. Muraoka, T. Imamura, T. Inaba, A. Yao, K. Kinugwa and I. Komuro

Department of Cardiovascular Medicine, University of Tokyo, Japan

Objectives: The pathology of chronic thromboembolic pulmonary hypertension (CTEPH) have been thought to be mainly thromboembolism and pulmonary vascular obstruction by organic thrombi. Some recent studies suggested the efficacy of pulmonary vasodilators in CTEPH patients but the magnitude of the contribution of vascular spasm to the elevation of pulmonary vascular resistance (PVR) is rarely understood. The objectives of this study are to investigate the pulmonary vasoreactivity to the vasodilator in CTEPH patients.

Methods: Twenty four CTEPH patients (mean age 63.3 ± 14.1 , female 67%) underwent right heart catheterization and following acute vasoreactivity test with inhaled nitric oxide (NO). The positive criteria of the acute pulmonary vasoreactivity test was defined as follows; 20% decrease from baseline in both mean pulmonary arterial pressure (mPAP) and PVR without decrease of cardiac index (CI).

Results: NO significantly reduced mPAP from 44.6 ± 8.3 to 41.0 ± 7.8 mmHg ($-7.8 \pm 6.3\%$ decrease) and PVR from 13.1 ± 6.6 to 11.2 ± 5.4 Wood Unit ($-13.0 \pm 12\%$ decrease), each ($P = 0.001$). In addition, NO tended to increase CI but the difference was not statistically significant ($P = 0.07$). The magnitude of PVR decrease by inhaled NO correlated significantly with baseline PVR ($R^2=0.43$ $P < 0.01$). Two of 24 patients (8%) met positive criteria.

Conclusions: Pulmonary vasodilator could relieve hemodynamic status in CTEPH patients but the magnitude of improvement remained to be mild. On the other hand, some patients showed significant vascular reactivity meaning that pulmonary vascular spasm strongly contributed to the pathophysiology in part of CTEPH patients. Acute pulmonary vasoreactivity test is thought to be useful for forecasting the efficacy of pulmonary vasodilators.

