Study of Echocardiographic Indices in the Chronic Thromboembolic Pulmonary Hypertension Curative Effect Judgment

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Abstract

Objectives: To clarify the echocardiographic indices for evaluating the effectiveness of balloon pulmonary angioplasty (BPA) in patients with chronic thromboembolic pulmonary hypertension (CTEPH).

Methods: We reviewed 28 CTEPH patients who underwent BPA from January 2010 to February 2012. Right heart catheterization and echocardiograms were performed before and after BPA. We compared the echocardiographic indices to hemodynamic data. Hemodynamic data included mean pulmonary artery pressure (mPAP) and pulmonary vascular resistance (PVR) . Echocardiographic indices included the tricuspid annular plain systolic excursion (TAPSE), the tricuspid annular systolic velocity obtained by Doppler tissue imaging, the right ventricular myocardial performance index(RVIMP), the area ratio of the right ventricle to the left ventricle, the area ratio of the right atrium to the left atrium and the eccentricity index in echocardiography.

Results: After BPA, the mPAP and PVR were improved significantly (mPAP: before 43±11mmHg, after 31±7mmHg, $p<0.01$; PVR: before 908±367dyne・s/cm^5, after 480±174dyne・s/cm^5, $p<0.01$.) Although most echocardiographic indices also improved significantly, TAPSE did not improve. Multivariable analysis revealed that the eccentricity index was the best index to reflect the degree of effectiveness of BPA .

Conclusions: The eccentricity index was judged to be the most useful echocardiographic index to evaluate the degree of effectiveness of BPA in CTEPH patients.

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Keywords

Echocardiogram, eccentricity index, chronic thromboembolic pulmonary hypertension, ballon pulmonary angioplasty

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