

# EARLY DETECTION FOR RIGHT VENTRICULAR DYSFUNCTION IN BRONCHOPULMONARY DYSPLASIA WITHOUT PULMONARY HYPERTENSION

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Bronchopulmonary dysplasia (BPD) is a chronic lung disease associated with under development of lung tissue, mainly occurring in premature and extremely low birth weight infants. BPD has a poor prognosis in morbidity and mortality but BPD with pulmonary hypertension and right ventricular (RV) dysfunction has worse prognosis.<sup>1)</sup> Early detection for pulmonary hypertension and RV dysfunction is important role for determining the modality of management in BPD.

There are several parameters to evaluate RV dysfunction, in this issue of the journal, Choi et al.,<sup>2)</sup> tissue Doppler imaging (TDI)-myocardial performance index (MPI) is used to evaluate RV dysfunction in BPD. Previous studies showed difference in TDI across various BPD severities with pulmonary hypertension.<sup>3,4)</sup> Generally, the pulmonary hypertension in severe BPD result from change of pulmonary vasculature, peri-bronchiolar fibrosis, alveolar septal fibrosis and vascular muscle hypertrophy, eventually, it is common to lead RV dysfunction.<sup>1)</sup> A strong-points of this study is that BPD patients in this journal had no pulmonary hypertension, no differences in TDI and only had differences in RV TDI-MPI. This result shows that RV TDI-MPI is useful for early detection of RV dysfunction without pulmonary hypertension in BPD. In BPD without pulmonary hypertension, the mechanism of occurrence of RV dysfunction is still unknown and may explain multiple factor; hypoxemia, metabolic acidosis and elevated pulmonary resistance, that cause the RV myocyte dysfunction.<sup>5)</sup> Recently, Haque et al.<sup>6)</sup> report the evaluation of RV dysfunction by RV myocardial deformation imaging (MDI) using global longitudinal strain in

BPD without pulmonary hypertension. The article shows that decreased RV function is associated with the severity of BPD. However, there is no data of RV TDI-MPI in their article and there is no data of RV MDI in this issue of the journal. Both RV TDI-MPI and RV MDI may be useful for detection of RV dysfunction in BPD without pulmonary hypertension, but, we do not know what method is the better way. However, strain analysis have several limitation that time consuming off-line analysis, good quality echo-image and the issue of reproducibility, and also RV longitudinal strain depends on RV loading condition as well as RV size and shape.<sup>7)</sup>

The current research by Choi et al.<sup>2)</sup> represent that RV TDI-MPI may be useful method for early detection of RV dysfunction without pulmonary hypertension in BPD and it is necessary to study the incidence and severity of future pulmonary hypertension accordance with value of RV TDI-MPI.

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 • Received: December 12, 2016 • Revised: December 13, 2016 • Accepted: December 13, 2016  
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