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LETTER TO THE EDITOR

Evaluation of Right Ventricular Dilatation by M-Mode Echocardiography

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I read the letter to the editor from Schweintzger et al. and deeply appreciated their comments and suggestions. They encouraged us to promote the use of our index for screening children with right ventricular (RV) dilatation due to isolated atrial septal defect (ASD). As noted in our article, we already recognize some problems and limitations in our methods [1]. M-mode scanning of the heart is easy and time-saving. However, the M-mode method is still a one-dimensional measurement and may not allow proper evaluation of the heart with a three-dimensional configuration. Errors of measurement may become large depending on the position of the M-mode line. To minimize these errors, we need to pay attention to both the M-mode line and body position. However, these relationships change with growth and maturation. Use of a large number of healthy children as a control is expected to provide optimal growth-related cutoff values to minimize these errors. Three-dimensional echocardiography does not require geometrical assumptions for volumetry and is an ideal method to analyze right ventricular volume and function, but it is time-consuming and requires after-processing [2]. This may be the greatest barrier to its implementation in a clinical setting. However, the dimensional change of the heart due to volume overload usually occurs radially, not longitudinally, probably because the heart is enclosed by the thorax, which limits the heart's longitudinal motion and enlargement [3, 4]. Therefore, volume overload is mostly expressed as a radial dimensional change, and we concluded that measurement of radial RV dimension by comparing the left ventricular (LV) dimension is reasonable for evaluation of RV dilatation in children.

Measuring RV or right atrial area two-dimensionally will provide a more accurate means of diagnosing ASD [5]. However, the RVD/LVD ratio can be obtained by M-mode in a routine echocardiographic examination. We hope this will be a useful index for screening patients with ASD.

Compliance with Ethical Standards

Conflict of interest None.

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