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Perioperative right ventricular systolic functional assessment and value analysis of pediatric right ventricular outflow tract reconstruction with echocardiography

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Introduction: Up to now, there are still lack of reports about right ventricular (RV) functional assessment and influencing factor analysis during perioperative period and short term after surgery. With real-time three-dimensional echocardiography (RT3DE) as the main technique, the study aimed to assess perioperative RV systolic function of conotruncal defects in pediatric patients who were operated with RV outflow tract reconstruction.

Materials and Methods: In 40 patients, RV systolic functional parameters before and three days after the surgery were assessed by RT3DE, etc, including end diastolic volume (3D-RVEDV), end systolic volume (3D-RVESV) and ejection fraction (3D-RVEF), RV fractional area change in apical four chamber view (RV-4FAC) and apical two chamber view (RV-2FAC), as well as tricuspid annular plane systolic excursion (TAPSE). Changes of perioperative RV systolic function were clarified by comparing these preoperative and post-operative parameters using T test, and then their values were analyzed.

Results: Compared with the preoperative measurements, in three days after the surgery the post-operative measurements of RVEDV, RVEF, RV-2FAC and TAPSE were significantly reduced, whereas RV-4FAC and RVESV were not changed significantly. In addition, RV-4FAC and RV-2FAC didn't show any significant difference during the preoperative period, while RV-2FAC was reduced compared with RV-4FAC postoperatively.

Conclusions: 3D-RVEF, RV-2FAC, TAPSE are three sensitive parameters to reflect the perioperative RV systolic function. After the surgery, the whole and regional RV systolic function such as RV outflow tract movement is impaired. RV outflow tract dysfunction might be the more important factor for RV whole systolic functional impairment.

Biography

Guo-Zhen Chen has completed her Ph.D. at the age of 35 years from Shanghai Second Medical University and Postdoctoral studies from Fudan University School of Medicine. She is a Vice-Chief Physician and Master Tutor of Pediatric Cardiology in China till now and Research Associate in University of Pittsburgh from Nov. 2011 to Aug. 2012. As the first author and corresponding author, she has published more than 41 papers in some American Medical Journals and main Chinese National Medical Journals.

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