

ポスター | 1-05 画像診断

## ポスター

### 画像エコー

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III-P-015~III-P-020

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## [III-P-015]The assessment of atrial function in single ventricle circulation after Fontan operation using two-dimensional speckle tracking echocardiography

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Keywords:echocardiography, strain, atrial function

Background: The atrial function in single ventricle physiology after Fontan operation is not unclear.

Purpose: The aim of this study is to elucidate the atrial function after Fontan operation using two-dimensional speckle tracking echocardiography. Methods: 31 patients after Fontan operation (age: median 10, 5 to 15 years, HLHS: 10 pts; TA: 9; SRV: 6; PPA: 6) were enrolled in this study. We used Vivid 7 or 9 (GE Medical System) and EchoPac as a PC workstation for assessing the atrium with speckle tracking echocardiography. We measured the atrial reservoir ( $\epsilon$  res), conduit ( $\epsilon$  con) and active ( $\epsilon$  act) strain and  $\epsilon$  act/ $\epsilon$  res ratio in the acquired 4ch views. Findings were compared with left atrium of age matched 20 healthy children. Result: Atrial  $\epsilon$  res and  $\epsilon$  con strain after Fontan were significantly decreased compared with healthy control, respectively ( $24.5 \pm 7.8$  vs  $42.0 \pm 9.8$ ,  $p < 0.0001$ ,  $14.3 \pm 6.1$  vs  $31.9 \pm 7.4$ ,  $p < 0.0001$ ). While,  $\epsilon$  act strain did not different between two groups ( $14.3 \pm 6.1$  vs  $31.9 \pm 7.4$ , ns). Thus,  $\epsilon$  act/ $\epsilon$  res ratio was significant increased after Fontan ( $0.42 \pm 0.17$  vs  $0.23 \pm 0.06$ ,  $p < 0.0001$ ). Atrial  $\epsilon$  res strain well correlated with ventricular systolic longitudinal strain ( $r=0.52$ ,  $p < 0.001$ ), as  $\epsilon$  con strain correlated with ventricular diastolic longitudinal strain rate ( $r=0.73$ ,  $p < 0.0001$ ). Conclusion: After Fontan operation, the atrial reservoir and conduit function are deteriorated, while, active atrial contraction is predominant. The atrial low compliant state would be related with ventricular performance.