
E-Oral Presentation | 一般心臓病学/心臓血管機能

E-Oral Presentation 7 (II-EOP07)

Chair: Miho Takahashi (Department of Child Health, Faculty of Medicine, University of Tsukuba)

Sat. Jul 8, 2017 6:15 PM - 7:15 PM E-Oral Presentation Area (Exhibition and Event Hall)

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[II-EOP07-05] LV Diastolic Chamber Stiffness is Linearly Correlated with Effective Arterial Elastance in Children with Heart Disease

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Background. Left ventricular (LV) diastolic chamber stiffness (stiffness) is closely correlated with LV filling dynamics. Some of the pathways that induce arterial and LV diastolic stiffening may be the same.

Purpose. We tested the hypothesis that increases in serum aldosterone levels may be correlated with both arterial and LV diastolic stiffening, and that LV stiffness may be closely correlated with effective arterial elastance indexed to body surface area (EaI) in children with heart disease.

Methods. This study included 102 consecutive pediatric (median age 2.4 years) heart disease patients with various biventricular circulation who underwent cardiac catheterization. Blood samples for serum aldosterone level were collected at the beginning of catheterization. Stiffness was calculated as pressure rise during diastole divided by stroke volume index.

Results. LV stiffness ($R=0.30$, $p=0.0035$) and EaI ($R=0.30$, $p=0.0033$) were linearly correlated with logarithm formation of serum aldosterone levels (median [IQR], 163 (81, 652) pg/mL). LV stiffness was closely and linearly correlated with EaI ($R=0.64$, $p<0.0001$).

Conclusion. Diastolic ventricular stiffening can be mechanically coupled to arterial stiffening in this population. The aldosterone pathway may at least partly be involved in both processes. Thus, aldosterone antagonists or afterload reduction using angiotensin-converting enzyme inhibitors may also ameliorate LV diastolic stiffening in children.