Therapeutic effect of medications for pulmonary hypertension in congenital heart disease after palliative surgery

Nakashima Y., Mori Y., Kaneko S., Inoue N., Murakami T., Koide M.
Seirei Hamamatsu General Hospital, Hamamatsu, Japan

Introduction
The effect of medication for pulmonary hypertension associated with congenital heart disease is widely known. However, in clinical practice, even if it does not correspond to the definition of pulmonary hypertension (mean pulmonary artery pressure $\geq$ 25 mmHg), it is used for better intracardiac repair in patients after palliative surgery.

Objectives
To examine the efficacy of treatment for pulmonary hypertension in congenital heart disease after palliative surgery.

Method
The patients with palliative surgery who introduced pulmonary hypertension medication were enrolled in this study. We performed cardiac catheterization before and after introduction. We measured pressure gradient ($\Delta P$) at mean pulmonary artery and left atrial pressure, pulmonary vascular resistance (Rp), PA index, pulmonary blood flow ratio (Qp / Qs), aortic oxygen saturation (SaO 2) and compared before and after. We divided the patients into two groups with mean pulmonary artery pressure $\geq$ 25 mmg (PH group) and <25 mm Hg (no PH group) and compared each parameters.

Result
There are 20 subjects. Major cardiac lesions are tetralogy of Fallot, atrial septal defect and ventricular septal defect. Blalock-Taussig shunt was performed in 10 cases, 6 cases of pulmonary artery banding and 4 of other surgery. Single or two types of pulmonary hypertension medication were administered and there were no cases of side effects. Rp and $\Delta P$ were significantly decreased, respectively (4.4 (1.9-15.7) to 2.4 (0.8 - 8.4) unit · m 2, 16 (6-58) to 9 (3-31) mmHg, p<0.01). PA index, Qp / Qs, and SaO 2 did not change. In PH group (n = 10), Rp and $\Delta P$ decreased, respectively (5.6 (3.0-15.7) to 2.8 (0.8-5.8) unit · m 2 (p <0.05), 28 (15-58) to 13(3-31) mmHg). In no PH group (n = 10), there were no significant changes in Rp(2.9 (1.9 - 6.4) to 2.1 (1.1 - 8.4) unit · m 2), $\Delta P$ (8 (6 -16) to 8 (3 - 16) mmHg), SaO 2 and Qp / QS.

Conclusion
The pulmonary hypertension treatment after palliative surgery reduces Rp and $\Delta P$, and may contribute to a better and safe cardiac procedure. These effects is limited to cases corresponding to pulmonary hypertension.