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

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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 (ΔP) at mean pulmonary artery and left atrial pressure, pulmonary vascular resistance (R_p), PA index, pulmonary blood flow ratio (Q_p / Q_s), aortic oxygen saturation (SaO_2) and compared before and after. We divided the patients into two groups with mean pulmonary artery pressure \geq 25 mmHg (PH group) and $<$ 25 mmHg (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. R_p and ΔP were significantly decreased, respectively (4.4 (1.9-15.7) to 2.4 (0.8 - 8.4) unit \cdot m², 16 (6-58) to 9 (3-31) mmHg, $p < 0.01$). PA index, Q_p / Q_s , and SaO_2 did not change. In PH group ($n = 10$), R_p and ΔP decreased, respectively (5.6 (3.0-15.7) to 2.8 (0.8-5.8) unit \cdot m² ($p < 0.05$), 28 (15-58) to 13(3-31) mmHg). In no PH group ($n = 10$), there were no significant changes in R_p (2.9 (1.9 - 6.4) to 2.1 (1.1 - 8.4) unit \cdot m²), ΔP (8 (6 -16) to 8 (3 - 16) mmHg), SaO_2 and Q_p / Q_s .

Conclusion

The pulmonary hypertension treatment after palliative surgery reduces R_p and ΔP , and may contribute to a better and safe cardiac procedure. These effects is limited to cases corresponding to pulmonary hypertension.