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Mid-term clinical outcome after Fontan conversion compared with primary total cavopulmonary connection.

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Background: The indication of Fontan conversion from atriopulmonary connection (APC) to total cavopulmonary connection (TCPC) is unclear.

Methods: In order to analyze mid-term outcome after Fontan conversion, TCPC patients who underwent cardiac catheterization at > 18 years of age between July 2005 and November 2018 were included and divided into two groups according to the first Fontan surgery (APC group, n=27; TCPC group, n=22).

Results: Fontan conversion in APC group was undertaken at the mean age of 22.2 ± 5.3 years. Ten cases (38%) had atrial tachyarrhythmia before Fontan conversion. Antiarrhythmic surgery was added in 25 cases, where 6 cases (24%) developed sinus node dysfunction after the procedure. Four of them required pacemaker implantation. Cardiac catheterization at the mean age of 27.4 ± 6.3 years in APC group and 26.2 ± 6.1 years in TCPC group showed no significant difference in SVC pressure (12.6 ± 2.5 mmHg vs 13.5 ± 4.1 mmHg), ventricular end-diastolic pressure (10.9 ± 3.5 mmHg vs 11.6 ± 5.1 mmHg), and cardiac index (3.0 ± 0.9 L/min/m² vs 2.5 ± 0.4 L/min/m²) between two groups. Median serum BNP at the time of catheterization was similar 16.4 pg/mL vs 21.6 pg/mL. Recurrence of tachyarrhythmia was seen in one in APC group immediately after surgery. Two patients in TCPC group newly developed atrial flutter.

Conclusions: Fontan conversion with antiarrhythmic surgery seemed to control future atrial tachyarrhythmia, though a few cases were complicated sinus node dysfunction. Hemodynamics and ADL were similar between two groups in their early 30s.