

Management and outcomes of arrhythmia after Arterial switch operation in 52 patients

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[Background] Previously, according to a report from our hospital, the incidence of arrhythmia was 73 (14%) in 811 patients who underwent cardiac surgery in infancy, and the prognosis was relatively good. Arterial Switch Operation (ASO) and Complete transposition of the great arteries(TGA) were one of the risk factors for the development of arrhythmia. Arrhythmia is known as a factor that influences the distant prognosis of TGA, but there are few reports on the frequency of perioperative arrhythmia, risk factors, and the effect of perioperative arrhythmia on the long-term prognosis.

[Object] To clarify the frequency and prognosis of postoperative arrhythmia of TGA.

[Subjects and methods] 52 patients who underwent Jatane surgery for TGA at our hospital from 2013 to 2021. The number of weeks of birth, birth weight, time of surgery, presence or absence of arrhythmia, time of onset, and intervention for treatment of arrhythmia were retrospectively examined using medical records. We compared and examined between the

two groups, the arrhythmia-developed group and the non-arrhythmia-developed group.

[Results] The subjects were 39 TGA type 1 and 13 TGA2 type. Median surgical intervention was 9 (6-255) days, postoperative observation was median 26 months (0-101 months), and perioperative arrhythmia occurred in 17 of 52 cases (32%). There were 4 (7.69%) perioperative deaths. Most of the arrhythmias that occurred were atrial tachycardia or supraventricular extrasystole, and 1 patient had severe atrioventricular block. The onset was 8.5 days (0-33 days) after surgery, and the permanent pacemaker was placed after surgery in 2 cases. Intervention was performed in 16 of 17 patients after the onset of arrhythmia, and 13 of 17 patients continued oral treatment at discharge, 9 of 13 patients discontinued medication at a median of 243 days. Since then, the arrhythmia has not recurred. Antiarrhythmic agents were  $\beta$ -blockers in 11 cases, digoxin in 2 cases, flecainide in 3 cases, and sotalol in 1 case. The arrhythmia-developed group had a shorter gestational age, height, and mitral valve annulus diameter than the non-arrhythmia group.

[Conclusion] An arrhythmia event was observed in about 30% after TGA, and therapeutic intervention was required. The arrhythmia-causing group had a small physique, mitral valve annulus diameter, and the volume overload on the postoperative left heart system was considered to be the cause of the arrhythmia. Most of the cases were able to withdraw the antiarrhythmic drug within one year even after the intervention, and the arrhythmic event

had not recurred since then. In this study, many acute-onset arrhythmias had a good prognosis.