

## ¿Nikaidoh or Rastelli?

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The Nikaidoh procedure has slowly increased its popularity among congenital heart disease surgeons in the management of complex transposition of the great arteries. According to the latest information of the Society of Thoracic Surgeons congenital heart disease database, approximately 10% to 15% of patients diagnosed with transposition of the great arteries with ventricular septal defect and left ventricular outflow tract obstruction are managed with aortic translocation procedure, while most of these patients are submitted to the Rastelli procedure. (1) Interestingly, both surgical procedures have a similar mortality rate of about 5%.

Long-term results after the Rastelli procedure are not encouraging, with a survival rate at 20 years of 50%. (2, 3) Certainly, some of them are historical and do not reflect current results. Recently, Brown et al (4) reported excellent results with the Rastelli procedure in a group of “carefully selected” patients without inflow or remote ventricular septal defect, ventricle, and overriding atrioventricular valve anatomy, and with pulmonary atresia.

The work of Villalba et al (5) published in this issue of the Journal has clearly shown very good short and mid-term results with the Nikaidoh procedure. In the last decade, numerous publications have presented similar results, but unfortunately these studies have a small number of patients and a limited long-term follow-up. (6-9) However, it is necessary to have long-term results to verify that the Nikaidoh anatomical correction has significant advantages over the Rastelli procedure.

It is important to establish that some of the patients who have undergone the Nikaidoh procedure present aortic root dilation or aortic regurgitation. (6, 8) In our initial publication (6) we reported the presence of moderate aortic regurgitation in 3 out of 11 patients. The etiology of these findings is not well defined, but is presumed to be due to surgical modification of the sinotubular portion of the ascending aorta during coronary artery reimplantation. In our experience, aortic regurgitation has been observed in patients who required coronary artery reimplantation. Emani et al. found an incidence of 25% in dilated aortic root with Z > 3 score

in their aortic translocation cases. (10) Nikaidoh has not reported significant aortic regurgitation in any of his patients, despite the fact that 63% of them had dilated aortic root. (7)

Although I have been among those who have proposed the Nikaidoh procedure throughout the years, I consider that in the management of complex transposition of the great arteries both procedures could be useful depending on the anatomy. In patients with pulmonary atresia or a very small pulmonary valve annulus in which the ventricular septal defect is near the aortic valve, the Rastelli procedure is a better surgical option. Moreover, anatomical studies and clinical experience have identified different morphological characteristics that have a better management with aortic translocation. (6-9, 11) These include the presence of inflow or remote ventricular septal defect, overriding atrioventricular valve and hypoplastic right ventricle.

Congenital heart disease surgeons should master both surgical techniques to provide the best care to these patients.

#### Conflicts of interest

None declared

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