

Surgical Methods for Congenital Repair Studied

Several procedures were investigated; Rastelli was the most common, although not the norm in France.

BY MARK S. LESNEY

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Optimal surgical management of patients with transposition of the great arteries, ventricular septal defect, and left ventricular outflow obstruction is still considered controversial.

Although the Rastelli operation is the most commonly performed procedure, the Réparation à l'Étage Ventriculaire procedure and the Metras modification yielded the best long-term results for both survival and event-free survival, according to a retrospective study of 146 patients who underwent surgery from 1980 to 2008 in eight European hospitals.

The multicenter study compared use and outcomes of several different surgical operations for transposition of the great arteries (TGA), ventricular septal defect (VSD), and left ventricular outflow tract obstruction (LVOTO).

A total of 141 patients had TGA, VSD, and LVOTO; 5 patients had the TGA type of double-outlet right ventricle (DORV) with LVOTO. Only those patients for whom the surgical method chosen was equivalent to those for TGA, VSD, and LVOTO were included in the study; all other DORV types were excluded, according to Dr. Mark Gerard Hazekamp of Leids Universitair Medisch Centrum, Leiden, the Netherlands, and

his colleagues from various European universities on behalf of the European Congenital Heart Surgeons Association.

The surgical procedures investigated were the Rastelli procedure (82 patients), arterial (24) and atrial (5) switch operation with relief of LVOTO, Réparation à l'Étage Ventriculaire (REV) procedure (7), and Metras modification (24), as well as the Nikaidoh procedure (4).

The type of surgery used on these patients has traditionally been performed differently in different countries, according to the researchers, with the REV procedure and Metras modification mainly performed in France and the Rastelli procedure being the norm in most other countries.

The patients had a median age at operation of 21.5 months (range 0.2-165.1 months) and a median weight of 10 kg (range 2.0-41.0 kg). Pulmonary stenosis was found in 119 patients, while 27 had pulmonary atresia. LVOTO was solely valvar in 24% of the patients, only subvalvar in 37% of patients, and multilevel in 39%.

The location of the most important VSD was known in 143 patients, with outlet septum in 102, inlet septum in 14, trabecular septum in 3, and a combination of the three in 24 patients. The great majority of the 140 patients for whom data were available had great artery commitment of the biggest VSD: to the aor-

ta in 60, the pulmonary artery in 32, and doubly committed to both in 19. Only 29 patients had noncommitment of one of the great arteries to the VSD.

Overall postoperative survival was 92% at 1 month, 88% at 1 year, 88% at 10 years, and 58% at 20 years. Events were followed as an outcome and were defined as death, reoperation, transcatheter intervention, or cardiac transplantation. The frequent necessity of

In multivariate analysis, age at the corrective surgery, year of the operation, and type of operation were significant predictors for reoperation and transcatheter intervention, in general, as well as for RVOT reoperation/intervention. The younger the patient at the time of operation, the higher the risk of later reoperation, according to the researchers, leading them to speculate that the more recently the surgery was performed, the less the probability that a patient would undergo reoperation.

Reoperation for RVOTO was observed to be most common in patients with a Rastelli operation, according to the authors.

"Although there are some differences between Rastelli outcomes among different groups, the all-over rates of freedom from reoperation and, especially, event-free survival, are not satisfactory with event-free survival rates at 10 years that vary from 24% to 49%," the researchers said.

"The Rastelli procedure was a significant independent risk factor for reoperation, with the REV/Metras and the Nikaidoh having the lowest re-intervention rates," they wrote. Although they pointed out that the number of Nikaidoh operations was low, the technique was recent, and it required considerable surgical experience, so further studies are needed to confirm the benefit seen. ■

VITALS

Major Finding: Rastelli outcomes among different groups, overall rates of freedom from reoperation, and event-free survival were found to be unsatisfactory, with event-free survival rates at 10 years that vary from 24% to 49%.

Data Source: A retrospective study of 146 patients who underwent surgery from 1980 to 2008 in eight European hospitals.

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reintervention (40.7% over the entire follow-up period) caused the overall event-free survival to be much lower, at 85% at 1 month, 80% at 1 year, 45% at 10 years, and 26% at 20 years (Euro. J. Cardiothorac. Surg. 2010;38:699-706).

There were 41 surgical reinterventions and 20 percutaneous procedures, with the most frequent cause of reoperation being RVOT obstruction, including conduit failure (25.0%), followed by LVOT obstruction (7.9%), residual VSD closure (7.1%), and pulmonary artery plasty (4.3%).

CABG Plus Adult CHD Repair Yields Good Late Outcomes

BY MARK S. LESNEY

FROM THE ANNUAL MEETING OF THE SOCIETY OF
THORACIC SURGEONS

SAN DIEGO – More and more patients with congenital heart disease are surviving into adulthood, resulting in a growing number of operations performed to repair adult congenital heart disease.

Many of these patients also have atherosclerotic coronary artery disease that may need to be addressed at the time of adult congenital heart disease (ACHD)

grafting (CABG) for atherosclerotic coronary artery disease at the time of ACHD repair. Dr. Stulak presented the results at the meeting.

He noted that, based on his findings, "Concomitant CABG may be required at the time of repair of ACHD. Disease of the LAD [left anterior descending coronary artery] is most common, and survival is higher when a LIMA [left internal mammary artery] graft is used.

Late functional outcome is good with a low incidence of late angina, myocardial infarction, or the need for percutaneous coronary intervention."

The patients, whose mean age was 64 years, underwent surgery between February 1972 and August 2009. A total of 25% had angina, 6% had prior myocardial infarction, and 5% had undergone percutaneous coronary intervention previously.

The most common primary cardiac diagnoses were secundum atrial septal defect, in 60%; Ebstein anomaly, in 11%; partial anomalous pulmonary venous connection (PAPVC), in 7%; and ventricular septal defect, in 6%. A total of 17% of the patients had a prior cardiac operation.

The most common operations included atrial septal defect repair, in 64%; tricuspid valve surgery, in 11%; pulmonary valve surgery, in 8%; ventricular septal de-

fect repair, in 8%; and PAPVC repair, in 7%.

A single bypass graft was performed in 69 patients, two grafts in 32 patients, three grafts in 14 patients, four grafts in 5 patients, and five grafts in 2 patients.

The LIMA was used in 57 of 82 patients (70%) with LAD disease.

The median follow-up was 6 years and was available for 111 patients. During that time, recurrent coronary artery disease was reported in nine patients (8%); eight patients (7%) had angina, and five (4%) had an MI. Six (5%) patients underwent intervention. All but 11 patients achieved NYHA functional class 1 or 2.

The overall survival observed was 76% at 5 years, 56% at 10 years, and 33% at 15 years. In those patients with LAD disease, 10-year survival was significantly higher when LIMA was used (66% vs. 36%).

Dr. Stulak added in an interview that although awareness of concomitant coronary artery disease in this population is growing, there are no firm recommendations on when to evaluate individual patients for the disease.

In addition, he said, the importance of this study is not only to increase appreciation for the potential need for CABG during ACHD repair, but to stress that each treatment approach should be individualized whether it is conventional CABG, off-pump CABG, or a staged hybrid technique with percutaneous coronary intervention for coronary artery disease. ■



DR. STULAK

VITALS

Major Finding: Disease of the left anterior descending coronary artery was most common and 10-year survival was significantly higher when the left internal mammary artery was used for grafting (66% vs. 36%).

Data Source: A retrospective analysis of 122 patients who underwent concomitant coronary artery bypass grafting for atherosclerotic coronary artery disease during repair of adult congenital heart disease.

Disclosures: Dr. Stulak and his colleagues reported that they had no disclosures.

surgery, but data on the prevalence of coronary artery disease in this population, as well as outcomes after such surgery, are limited.

To address this issue, Dr. John M. Stulak of the Mayo Medical School, Rochester, Minn., and his associates conducted a study of 122 patients (77 male) who underwent concomitant coronary artery bypass