

CAVC Repair Is Safe, Successful in Youngest Infants

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ORLANDO — Infants younger than 3 months who undergo repair of complete atrioventricular canal fare as well as older infants following the procedure, said Dr. R. Ramesh Singh at the annual meeting of the Southern Thoracic Surgical Association.

Numerous studies have shown that better outcomes are achieved when complete atrioventricular canal (CAVC) repair takes place within the first 6 months of life to prevent the development of heart failure and long-term pulmonary vascular changes resulting from a substantial increase in blood flow and pressure in the lung circulation. The demonstrated efficacy of CAVC surgical repair over the last 20 years—most notably a drop in mortality from about 25% to 3%—has led some surgical centers to adopt a more aggressive repair approach by operating on infants within the first 3 months of life, particularly in children with Down syndrome, who are more vulnerable to early pulmonary vascular changes than children without the condition, Dr. Singh said.

CAVC repair before 3 months of age is of benefit to Down syndrome infants, who are more vulnerable to early pulmonary vascular changes.

To determine whether the more aggressive approach is associated with increased morbidity or mortality, Dr. Singh and colleagues at the University of Virginia Health System, Charlottesville, reviewed the outcomes of 65 infants who underwent CAVC repair at their institution between 1990 and 2004. “The study was prompted in part by the difficulty thoracic surgery board examinees have had in dealing with this clinical scenario, simply because there is no consensus on the best timing of surgery,” said Dr. Singh.

Of the 65 infants, 26 underwent CAVC repair surgery on or before 3 months of age, and 39 had the procedure done after 3 months (mean age between 5 and 6 months). Other than age, characteristics of infants in both groups were similar, “although there was a significantly higher preponderance of patients with Down syndrome in the older group,” said Dr. Singh. “Down syndrome in itself is not an independent risk factor of [postsurgical] morbidity or mortality in this patient population,” he said.

All infants underwent preoperative echocardiography, and 13 of them—6 in the younger group, 7 in the older—also had cardiac catheterization evaluations. None of the patients had undergone previous palliative pulmonary interventions, including pulmonary artery banding. Follow-up for all infants included periodic clinical examinations and echocardiography.

The repair surgery itself was customized for each patient. Depending on each infant’s specific anatomy, the ventriculoseptal defect was repaired using di-

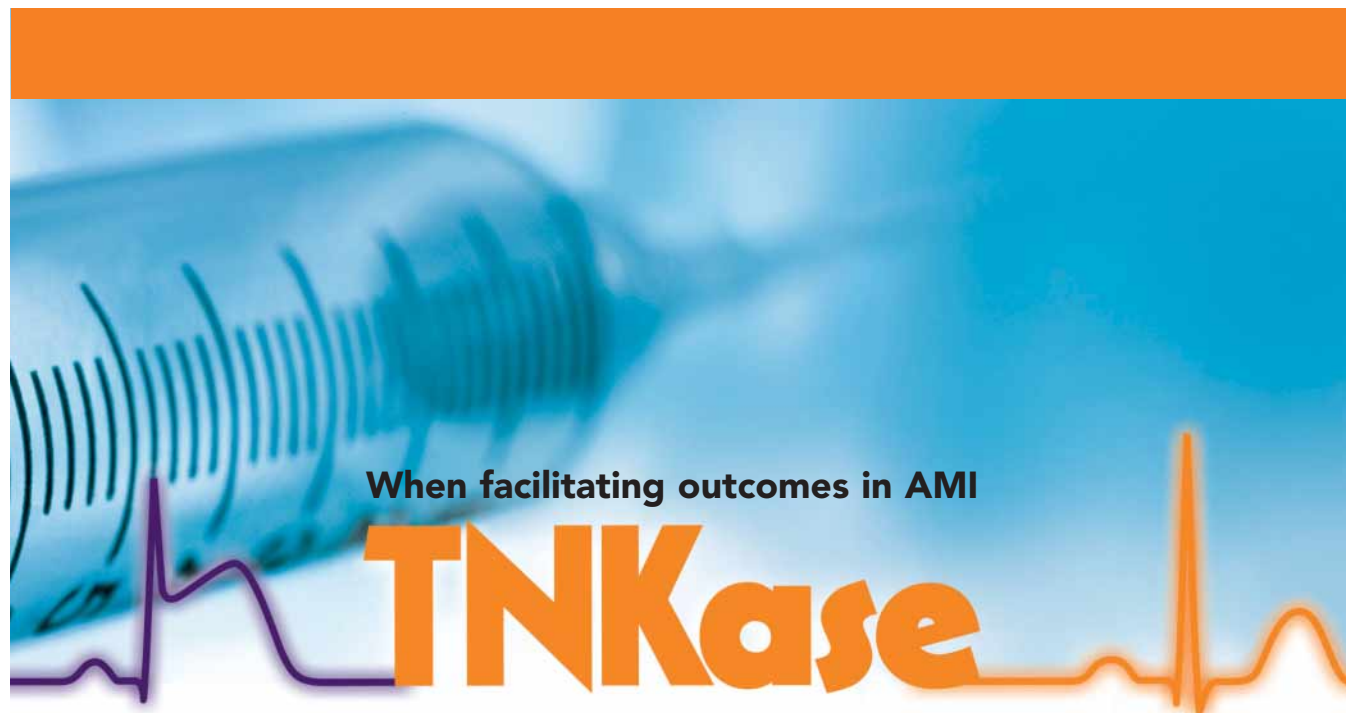
rect suturing without a patch or using interposition of a small pericardial patch with a running suture. Closure of the atrioventricular cleft was with interrupted sutures, and closure of atrial defects was with a pericardial patch. Chi-square analysis and Fisher’s exact test of the data showed no significant differences in post-surgical morbidity and mortality between the two treatment groups, Dr. Singh said. There were two deaths in the younger infants—one of which occurred during an-

other noncardiac surgery—and one among the older group.

Morbidity related to the procedure was measured by the need for early reoperation (within 1 year) for residual ventriculoseptal defect or significant mitral regurgitation. “The reoperation rates were statistically identical, with three of the younger infants and four of the older ones requiring additional surgery within the first year,” said Dr. Singh. In addition, the number of infants in each group with mitral valve regurgitation,

a common condition in this population, was similar, he said.

“Modern surgical techniques have essentially eliminated some of the problems previously associated with the surgical repair of CAVC, including postoperative pulmonary hypertension,” said Dr. Singh. “Today’s procedure is associated with a high likelihood for success, and our findings suggest that such success is as likely in infants younger than 3 months than in older infants,” he said. ■



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Reference 1. Antman EM, et al. ACC/AHA guidelines for the management of patients with ST-elevation myocardial infarction. 2004. Available at <http://www.acc.org/clinical/guidelines/stemi/index.pdf>.

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