BARI 2D: Up-Front CABG Shows Advantages

BY BRUCE JANCIN

Orlando — Type 2 diabetes patients with stable but severe and extensive coronary disease are best served by a management strategy of prompt coronary artery bypass graft surgery with intensive medical and insulin sensitization therapy, according to a new secondary analysis from the BARI 2D trial.

This approach provides significantly greater clinical and quality of life benefits and is more cost-effective than is trying medical management first and holding CABG in reserve for the suboptimal responders, investigators from BARI 2D (the Bypass Angioplasty Revascularization Investigation 2 Diabetes study) reported at the annual scientific sessions of the American Heart Association.

BARI 2D showed that an up-front revascularization strategy was advantageous only in the sorts of diabetes patients whose ischemic heart disease was better suited for CABG than for percutaneous coronary inter-vention: generally, those with three-vessel disease, more total occlusions, and/or significant proximal left ante-rior descending lesions.

In contrast, a wait-and-see approach to revascular-ization is preferable in type 2 diabetes patients with less extensive coronary disease that is suitable for PCI. In such patients—the majority of type 2 diabetics with is-chemic heart disease—intensive medical treatment alone should be the first-line therapy. BARI 2D showed that it is significantly less costly and no less effective than up-front PCI in terms of hard cardiac end points at 5 years of follow-up, said Dr. Bernard R. Chaitman, pro-fessor of medicine and director of cardiovascular re-search at St. Louis University.

“If angina symptoms are controlled and the patient is satisfied with [his or her] quality of life, a strategy of watchful waiting is more appropriate,” he added.

BARI 2D involved 2,368 type 2 diabetes patients with stable coronary disease. On the basis of their an-giographic findings, their treating physicians assigned 1,605 of them to the PCI stratum and 763 to the CABG stratum. Within each stratum, participants were randomized to prompt revascularization plus intensive medical management or to intensive medical manage-ment alone, with delayed revascularization as clinical-ly indicated. Patients were further random-ized to insulin provision or insulin sensitization therapy for their diabetes management.

In the patients with more severe coronary disease deemed most suit-able for CABG, prompt revascular-ization was associated with significantly lower 5-year rates of MI, the com-posite end point of all-cause mortality, or MI, and the composite of cardiac death or MI (see box). These benefits were significant only in the subgroup with insulin sensitization therapy, which is why up-front CABG combined with intensive medical treatment and insulin sensitization is the preferred strategy, Dr. Chaitman said.

Dr. Mark A. Hlatky presented a cost-benefit analysis of BARI 2D based on 4 years of eco-nomic data. Lifetime projections suggested that prompt CABG in patients with more severe coronary disease may be cost-effective, with a cost of $47,000 per life-year added, just under the benchmark of $50,000 per life-year added. Initial medical therapy is the more cost-effective strategy in patients similar to those in the PCI stratum, with a cost of only $600 per life-year added.

Cumulative 4-year total cost in the PCI stratum av-eraged $67,800 per patient assigned to initial medical management compared with $73,400 with up-front PCI. In the CABG stratum, the figures were $60,600 with initial medical management, compared with $80,900 with early revascularization, according to Dr. Hlatky.

“If patients are really not satisfied with their quality of life and they’re willing to accept the slight risks of a peri-procedural event, then I think that’s reasonable.”

BARI 2D was funded by the National Heart, Lung, and Blood Institute and the National Institute of Dia-betes and Digestive and Kidney Diseases. Dr. Chaitman has been a consultant to Eli Lilly & Co. Dr. Hlatky and Dr. Brooks reported no financial conflicts.

Best Shunt for Norwood Operation Remains Unresolved

Major Findings: At 1 year, infants who received the RV-PAS had a significant ab-solute reduction in death or need for transplant vs. those who received the MBTS; after 1 year that rate was higher in the RV-PAS patients.

Source of Data: The Single Ventricle Reconstruction Trial, involving 555 infants.

Disclosures: The National Heart, Lung, and Blood Institute sponsored the trial. Dr. Ohye had no conflicts.

By MITCHEL L. ZOLER

Orlando — The best shunt to use in the Norwood operation, during the first stage of repairing hypoplastic left heart syndrome, remains a toss-up despite completion of a yearlong randomized trial with more than 500 infants.

“What we see at 12 months is a sur-vival advantage” for a right ventricle-to-pulmonary artery shunt (RV-PAS) com-pared with the alternative, modified Blalock Taussig shunt (MBTS), Dr. Richard G. Ohye said at the annual sci-entific sessions of the American Heart Association.

“The concern is that the [survival] curves begin to converge, and in the fu-ture will they remain parallel or cross?” As a result of this uncertainty about long-term survival, “concrete recom-mendation will have to wait for further follow-up,” said Dr. Ohye, director of pe-diatic cardiac surgery at the University of Michigan, Ann Arbor.

The MBTS has been the traditional op-tion during the Norwood operation, but concerns about its safety focused on the retrograde coronary flow it allows that could potentially interfere with coro-nary perfusion and lead to ischemia and infarction. Dr. Richard G. Ohye, professor of health research and policy and pro-fessor of medicine at Stanford (Calif.) University, concluded that 1 year after completion of a yearlong randomized trial, the event curves may be converging over time.

Uncertainty over which shunt pro-duced the best outcomes led to the Sin-gle Ventricle Reconstruction Trial, done through the Pediatric Heart Network at 15 U.S. sites. It randomized 555 infants scheduled for the Norwood operation to either of the two shunt strategies.

One year after randomization, the in-cidence of death or need for heart trans-plant was 26% in patients getting the RV-PAS, 6% in those getting the MBTS, a statistically significant 10% absolute differ-ence in the primary end point in favor of the RV-PAS. Although this was the pri-mary end point, it did not tell the entire story.

Follow-up continued and after an aver-age of 32 months, 16 additional deaths or heart transplants occurred in the RV-PAS group compared with 7 of these events in the MBTS infants, a trend that led to the observation that the event curves may be converging over time.

Researchers randomized was an unintended cardiac procedures such as balloon dilations of the shunt or neuroaorta, shunt revisions, or unplanned pulmonary artery reconstructions, were significantly more common in the RV-PAS infants, 54%, compared with those who received MBTS, 44%. The RV-PAS also produced smaller pulmonary arteries by the Nakata index.

By most other criteria, the two proce-dures produced similar outcomes. Time to extubation during surgery, duration of ventilation, and total days spent in the ICU and in the hospital were identical, as was the percentage of infants who required an open sternum or extracorpo-real membrane oxygenation. The inci-dence of nonfatal serious adverse events was similar in the two arms, as was long-term right ventricular function. Infants treated with RV-PAS had the advantage of a significantly reduced need for car-diopulmonary resuscitation, 13%, com-pared with 20% in the MBTS infants.

“Although 12-month, transplant-free survival is higher with RV-PAS, the emerg-ence of later mortality with RV-PAS is of concern. Continued follow-up of the cohort will be important to determine intermediate and long-term outcomes,” Dr. Ohye said.

BARI 2D: Key 5-Year Outcomes by Early Revascularization Strategy

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<tr>
<th>PCI stratum (1,605)</th>
<th>CABG stratum (763)</th>
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<td>PCI</td>
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*Significantly different from intensive medical therapy group. Source: Dr. Chaitman