Surgical Strategies For Heart Defect Unclear

According to the American Heart Association, infants born with a severely underdeveloped heart are more likely to survive to their first birthday when treated with a new shunt procedure — yet it may not be the safest surgery in the long term.

Babies born with a critically underdeveloped left side of their hearts require three surgeries to correct the problem. A portion of the first operation, the Norwood Procedure, includes a connection to deliver blood from the heart to the pulmonary arteries feeding the lungs so that blood can pick up oxygen. There are currently two ways it can be done:

- The new modification of the Norwood utilizes a right ventricle to pulmonary artery (RV-to-PA shunt) shunt to connect the functioning right ventricle to the pulmonary artery.
- The traditional version uses a modified Blalock-Taussig shunt (MBTS), which connects the aorta to the pulmonary artery.
  In the first results from the study, the researchers reported:
    - At 12 months, significantly more babies survived without requiring a heart transplant with the RV-to-PA shunt compared to the MBTS.
    - The RV-to-PA shunt had more complications, necessitating interventions 87.6 percent of the time to make adjustments to the shunt or use balloons or stents to keep it open.
    - Fewer cardiovascular interventions were needed, about 66.5 percent of the time, in the MBTS group.
    - At an average of two years, the transplant-free survival advantage of RV-to-PA (68 percent) over MBTS (62 percent) had diminished. "Early results seem to favor the RV-to-PA shunt, but by two years there is no longer any survival advantage," said Richard G. Ohye, M.D., lead author of the study and associate professor of surgery at the University of Michigan Medical School in Ann Arbor. "It is still unknown which will turn out to be better over the long term."
    For example, the children still must undergo other stages of surgical repair to increase the amount of oxygen in their blood. Good pulmonary artery growth is important in the success of this procedure. In the results so far, overall pulmonary artery growth was significantly greater after the MBTS. The downside of the MBTS is that it takes blood away from the arteries feeding the heart muscle. The RV-to-PA shunt doesn't do this, but requires an incision into the baby's only working ventricle, creating scarring that might interfere with its later function.

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