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**Fetal heart surgery may prevent full-blown left heart chamber disorder**

Study highlights:

- Fetuses with hypoplastic left heart syndrome benefited from surgery performed during weeks 20–24 of pregnancy.
- When successful, the surgery prevented the full-blown disorder from developing and helped increase heart function.

DALLAS, Sept. 28, 2009 — Surgery performed in fetuses predicted to be born with a syndrome causing severely underdeveloped hearts helped some avoid developing the full-blown disorder and improved heart growth and function, researchers reported in *Circulation: Journal of the American Heart Association*.

Researchers at Children’s Hospital in Boston used ultrasound images to identify fetuses at high risk of developing hypoplastic left heart syndrome (HLHS), a condition in which the left side of the heart is severely underdeveloped. This leaves the fetuses with only one pumping heart chamber; if this condition is not treated, it is usually fatal soon after birth.

Based on the first 70 attempts at the prenatal intervention from 2000-08, 67 percent of the fetuses had a technically successful procedure and were born at a viable gestational age, researchers said.

Development of the left side of the heart in those who underwent the prenatal intervention clearly improved compared to those who did not.

“By intervening early, we hope to alter the course of heart function and growth before birth and lessen the severity of the defect,” said Doff B. McElhinney, M.D., lead author of the study and an associate in cardiology at Children’s Hospital of Boston, Mass. “The surgery was typically performed between the 20th and 24th week of pregnancy; 77 percent of the fetuses were male (the syndrome occurs most often in males).”

McElhinney said the study was most helpful in determining which fetuses were not good candidates for the surgery.

“Based on our analysis, we discovered that fetuses with left heart size and function below certain levels at the time of intervention were very unlikely to achieve the intended result,” McElhinney said. “This will allow us to offer the therapy more selectively and not expose mothers and fetuses to the obvious risk of intervention when there is no chance of helping the heart develop more normally.”

Despite the insights provided by this study, predicting which fetal intervention will result in improved left heart growth and ultimate postnatal survival remains a challenge and requires further investigation, said McElhinney, who is following patients in the study and performing the surgery on additional fetuses.

“We will need more data on outcomes after birth,” said McElhinney, who is also assistant professor of pediatrics at Harvard Medical School. “We hope to be successful by determining the most appropriate cases, which will enhance the risk/benefit profile of the intervention.”

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Author disclosures are on the manuscript.

This study was supported by contributions from the Kenrose Kitchen Table Foundation and from Brad Lerman and Rita Conroy.

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