**Fontan Procedure Completed via Stenting**

**BY JANE SALOOF**

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**Stockholm** — Physicians in Saudi Arabia are using catheterization instead of surgery to complete the Fontan procedure in infants born with a univentricular heart, Dr. Ahmed Sallehuddin reported at a meeting of the European Association for Cardio-Thoracic Surgery.

Nine of 16 children have successfully completed a modified form of the multistage intervention, according to preliminary results presented by Dr. Sallehuddin, a consultant cardiac surgeon at King Faisal Specialist Hospital and Research Center in Riyadh. Stenting was not possible in one child, who was converted to surgery. The other six in his report awaited the final step.

At 21 months of follow-up, there were no procedural mortalities or late deaths. Mean oxygen saturation was 92.7%, and ECG revealed no gradients across the stents that were inserted. One child underwent scheduled dilation of a stent from 12 mm to 18 mm at 1 year of age.

“Fontan completion without surgery is possible in selected patients with single ventricles,” Dr. Sallehuddin said at the conclusion of his plenary presentation at the meeting, which was held with the European Society of Thoracic Surgeons.

During an interview after his talk, Dr. Sallehuddin said he and his colleagues are trying to minimize the risks inherent in the multistage Fontan procedure by moving the final stage from the operating room to the catheter lab. “The patients do not need another wound. They do not need to be on coronary bypass,” he said. “They require less care. They go home.”

The experimental technique does not eliminate surgery in the complex repair. From June 2003 to February 2006, all 16 infants underwent bidirectional Glenn procedures in preparation for Fontan procedures. Physicians pierced the autologous pulmonary venous drainage repair; another required a Daman-Kaye-Framel anastomosis.

The nine boys and seven girls had various forms of univentricular heart. All were older than 3 months and weighed more than 4 kg at the time of the procedure. Their mean age was 12.5 months, and their mean weight was 7.5 kg.

During the surgical stage, Dr. Sallehuddin’s team used a Gore-Tex vascular tube between 14 mm and 16 mm in diameter to create an intra-arterial lateral tunnel. They patched the cardiac end of the superior vena cava and fenestrated the tunnel with a single aperture 10 mm-14 mm in diameter.

When the infants were older than 10 months and weighed more than 9 kg, the surgical team completed the Fontan procedure with general anesthesia in the cath lab. The mean age at this point was 20 months, and the mean weight was 11 kg.

Physicians pierced the autologous pericardial patch with radiofrequency energy and gained femoral access by dilating the patch with a balloon. They deployed a stent mounted on a second balloon across the patch and closed the fenestrations with an occlusion device. Whereas the mean diameter of the aperture had been 11.8 mm at the conclusion of the surgical preparation, it was 7.9 mm at the time of completion.

Dr. Sallehuddin reported the average fluoroscopy time was 41 minutes and the mean procedural time was 212 minutes. The increase in oxygen saturation was significant: from 83% before stenting to 93% afterward. Pulmonary artery pressures were normal before and after: 15 mm Hg and 19 mm Hg, respectively. The nine boys and seven girls were all 14.4 mm on average.

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