Medlines

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Dr. William Moskowitz

A New Heart Procedure Makes Medical History

Dr. William Moskowitz, Director of the Pediatric Cardiac Catheterization Laboratory, and Dr. On Topaz, Director of Interventional Cardiology, McGuire Veterans Affairs Medical Center, have made medical history again by being among the first to use an Excimer Laser on a 5-month old baby suffering from the congenital heart defect, pulmonary atresia with intact ventricular septum. This challenging procedure was one of the first performed in the country.

"Pulmonary atresia with intact ventricular septum remains one of the few remaining congenital heart defects associated with limited treatment options and outcomes. The use of this new technique may improve this situation for children born with this severe heart condition," said Dr. Moskowitz.

Pulmonary atresia with intact ventricular septum is a rare cardiac defect, affecting 3% of those who suffer from congenital heart disease. It's a condition in which the pulmonic valve is totally closed, trapping blood in the right ventricle. This leads to high pressure in the heart's chambers as well as low oxygenated blood returning to the body.

Drs. Moskowitz and Topaz began the 24-hour assessment by performing an electrocardiogram, echocardiogram and catheterization on the 5-month old baby. The purpose of the assessment was to allow Drs. Moskowitz and Topaz to use the Excimer Laser to open a hole in the baby's thick pulmonary closed valve and then to dilate the valve with a balloon.

A diagnostic catheter was inserted while tracking the heart's movement on a monitor. A very small Excimer Laser (0.9 mm) was passed through the standard catheter to burst a small opening in the obstructed pulmonic valve by using an ultraviolet laser light. The channel that was created by the laser enabled the physicians to insert a balloon catheter. The balloon was then inflated, which caused enough pressure on the valve to open it. Larger balloons were placed across the newly opened valve, making the opening as large as possible. Blood flow to the lungs was increased and pressure decreased in the chambers. The child stayed overnight and went home the next morning with a higher blood oxygen level and in good spirits.

"The procedure was highly challenging from a technical and clinical point. We predict future procedures of this kind will result in similar success allowing for new, exciting use of the laser in cardiovascular medicine," said Dr. Topaz.

In the past, the only treatment option for these patients has been open-heart surgery or a catheterization using a sharp wire, which can be risky. The Excimer Laser simplifies the procedure by reducing x-ray exposure and lowering the risk of inadvertent perforation of other cardiac structures besides the pulmonary valve.

Dr. Topaz's expertise in laser angioplasty and laser technology and Dr. Moskowitz's expertise in pediatric cardiology was a perfect match – making the Excimer Laser procedure more safe, controlled and effective.