TECHNOLOGY & INNOVATION

at Cox benefits cardiac care

by Donna Barton

Advancing medicine at Cox Health Systems is touching the lives of patients impacted by heart disease and heart attack. These breakthrough techniques and treatments not only demonstrate Cox's commitment to cardiovascular health, it means the hearts of more Ozarkers will keep the beat of life.

TNKase and LifePak 12

Early this year Cox Health Systems' Pre-Hospital ambulance services began utilizing the advanced clot-busting therapy TNKase in the treatment of heart attack patients. Unlike the drug Retavase, which requires two injections over 30 minutes, TNKase is the first drug of its kind that can be administered in a single bolus injection over five seconds. TNKase works by stimulating the body's clot-dissolving mechanisms to prevent damage or hinder further damage to the heart. Cox Air Care was the first air ambulance in the region to administer the treatment.

This cardiac enhancement is coupled with the LifePak 12 cardiac monitor/defibrillator/pacemaker technology, employed in February 2002 throughout Cox ambulance services. The LifePak 12 monitor allows emergency personnel en route to the hospital to collect and transmit 12-lead electrocardiogram (EKG) information to any facsimile machine, allowing rapid evaluation of changes and easier tracking of cardiac conditions and risks.

"This greatly improves our ability to care for certain heart attack patients long before they arrive at the hospital," says Mark Alexander, director of Cox Pre-Hospital services. "Taking less time during a heart attack means saving more heart muscle."

Microwave ablation

Atrial fibrillation, the most common form of cardiac arrhythmia, is an uncontrolled beating of the heart's upper chambers due to a breakdown in the heart's electrical signals. But a device created by Dr. Keesag Baron, a Ferrell-Duncan electrophysiologist, is proving successful in treating this disorder.

Baron developed a disposable silicon-encased microwave wand, approved by the Food and Drug Administration in May 2001, that delivers deep, uniform microwave radiation to a precise area of the heart without damaging surrounding tissue. According to Baron, applying microwaves to the heart allows surgeons to heat small linear areas on the organ, disrupting the faulty electrical activity that causes arrhythmia. "Microwave ablation eases the discomfort of an irregular heartbeat and, because it restores regular blood flow, it lowers the risk of stroke," Baron says. The procedure can be performed in approximately one hour and is commonly used in conjunction with other heart surgery such as heart bypass or valve replacement.

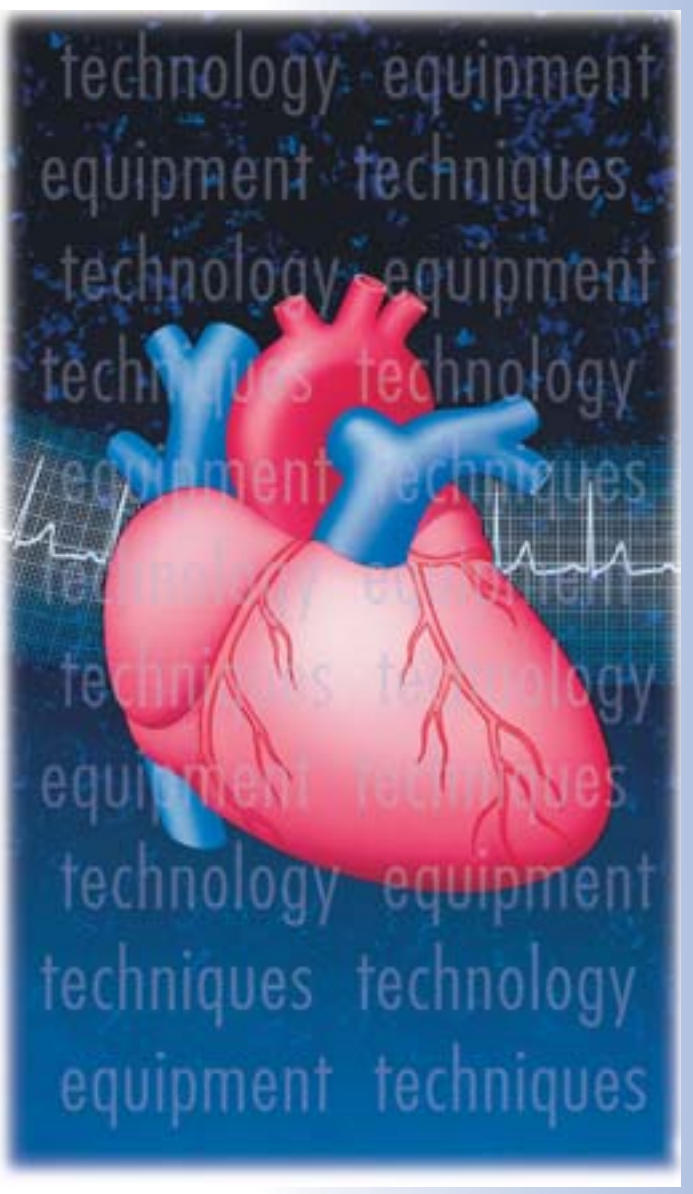
Another generation of Baron's microwave wand, approved by the Food and Drug Administration in February 2002, allows a surgeon to perform the procedure in a minimally invasive technique through a thoracoscope and may be used with robotic surgical techniques.

Brachytherapy

Cardiologist Dr. James Ceaser, radiation oncologist Dr. John Clouse and physicist Dr. John Pacyniak are the pioneers of a procedure that works to correct clogged coronary stents. Stents are widely used to open clogged coronary arteries – an estimated 700,000 Americans undergo surgery to reopen obstructed arteries and 80 percent of them are given stents – however, cells can grow through the stent's steel mesh and clog the artery again. Until recently the only effective treatment for this problem, known as restenosis, was bypass surgery.

Typically reserved for cancer patients, this new brachytherapy technique involves sending small amounts of beta radiation through a catheter to destroy the tissue that is blocking blood flow. A hand-held hydraulic pressure gun is used to inject seeds of radiation which remain at the site long enough to destroy the unwanted tissue and are then retrieved through the catheter.

The treatment usually requires a one-night hospital stay and can help prevent heart attacks as well as eliminate the need for future surgery on the same artery.



Aortic connector

During coronary bypass surgery the stitching or suturing of the vein being used to reroute blood flow to the aorta often proves to be the most time-consuming part of the procedure. For many years physicians believed there was little that could be done to simplify this aspect of the surgery, but now, thanks to the advent of the aortic connector, cardiac surgeons at Cox are able to attach veins to the aorta without sutures. A hand-held device deploys a series of wires, instead of sutures, to hold the vein in place.

Dr. John Steinberg, a Ferrell-Duncan cardiothoracic surgeon, explains there are several advantages to the aortic connector. "It is quicker for surgeons to perform and that decreases the risk of stroke because the patient spends less time on the operating table," Steinberg says. The procedure also eliminates the need for an aortic clamp, which can present risks for patients that have a buildup of calcified plaque on the aorta.

At Cox Health Systems, we strive to provide the most up-to-date procedures, equipment and technology … because we know you wouldn't trust your heart to just anyone. ❖

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