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St. John's participating in renal nerve ablation trial to treat resistant high blood pressure

SPRINGFIELD, IL – Prairie Heart Institute at St. John's Hospital is pioneering a procedure in which the nerves in the renal arteries are deadened in order to attenuate hypertension. The procedure relies on the same minimally invasive technique that is used in cardiac catheterizations.

Prairie Education and Research Cooperative (PERC) is one of only five research institutes in the United States to participate in the Renal Ablation trial. PERC, the research arm of Prairie Heart Institute at St. John's Hospital, is responsible for selecting research candidates and documenting the results.

The PERC team is investigating how the procedure can be used to ablate the renal nerves by inserting a probe into each renal artery – eight minutes per kidney – and discovering the effects are potentially life-changing for patients.

In 1983, Prairie Heart cardiologist Richard Katholi, MD, while in the department of medicine at the University of Alabama, published an article that demonstrated the role the kidneys play in determining blood pressure.

Katholi discovered that if the nerves lining the arteries to and from the kidneys could be deadened, a significant lowering of blood pressure would occur. "The kidney acts as a sort of barometer for setting blood pressure," said Dr. Katholi. "It communicates with the brain to raise or lower blood pressure."

For more than twenty years, the findings of Dr. Katholi and his research staff remained in the pages of the medical journal. Now, "St. John's was selected as an investigational site for the Simplicity® Catheter System study due to its reputation as a leading research institution and because of the unique qualifications of its cardiology staff," said Andrew Cleeland, President and CEO of Ardian, the company that is developing the catheter-based renal denervation procedure. "Drs. Katholi and Rocha-Singh, along with interventional cardiologist Dr. Nilesh Goswami and research staff Janiece Rutherford, Jenni Jones, Candice Feit and Cyndi Deitrick, comprise the group that was a perfect fit for the study, bringing together both basic science and interventional expertise in a way to optimize patient care."

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Results from the first 50 patients of a feasibility study involving this technology (presented at the annual American College of Cardiology meeting in March of this year) demonstrated blood pressure reductions in a resistant hypertensive population of -21/-10, -22/-11, -24/-11 and -27/-17 mmHg at 3, 6, 9 and 12 months, respectively. PERC is a part of 20 patient United States expansion of this feasibility trial and has enrolled 10 patients at St. John's Hospital. As the results are recorded and analyzed, further clinical trials are expected.

“There is an enormous potential for widespread effects of renal nerve ablation concerning medical costs as well as improved quality of health,” said Dr. Katholi. “If you have a young person who has high blood pressure, cost [of medication and treatment] and compliance [with taking prescribed medication] is a big long-term issue.”

For younger patients who are on several medications with no stabilization of the hypertension, renal nerve ablation offers the potential to improve both the quality of life as well as reduce medical costs in both the long and short term. “Of the different risk factors for vascular disease, high blood pressure is number one,” said Dr. Katholi. “So if a patient's blood pressure is better, we lower the risk for stroke, heart attack, congestive heart failure and kidney failure. That also means fewer medications.”

According to a study done at Purdue University, in 2001 the United States' mean incremental annual per capita direct cost for a hypertensive individual was \$1,131, causing the total incremental annual direct costs for hypertension patients estimated in excess of than \$54 billion.

The same study reported that prescription medicines, inpatient visits, and outpatient visits constituted more than 90 percent of the overall incremental cost of treating hypertension. Those who have hypertension are also more likely to require additional medical care services, including: prescription medicines, inpatient visits, outpatient visits, emergency room visits, office-based medical provider visits, home health visits, and other medical expenses as compared to non-hypertensive patients.

Hypertension affects one billion people – one third of adults in the developed world. It is the single most common contributor to death worldwide, being a root cause of stroke, heart attack, congestive heart failure and kidney disease. Despite the availability of such drugs only about 35% of hypertensive patients are considered controlled. Within this population of treated and uncontrolled hypertensives, approximately 10% are considered resistant to existing therapy.

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