Medtronic News

Trial of Medtronic Symplicity(TM) Renal Denervation System Shows Significant Blood Pressure Reduction, With No Evidence of Renal Impairment, at Six Months Post Treatment

Six Month Pooled Outcomes From Randomized and Crossover Patients Following Renal Denervation Presented at the 22nd Annual Scientific Meeting of the European Society of Hypertension Confirm Previous Symplicity Clinical Trial Findings

MINNEAPOLIS & LONDON, Apr 27, 2012 (BUSINESS WIRE) --Medtronic, Inc., (NYSE: MDT), announced today six month pooled outcomes from randomized and crossover patients in the Symplicity HTN-2 clinical trial following renal denervation with the Symplicity(TM) renal denervation system showing significant, sustained blood pressure reduction in patients with treatment-resistant hypertension. These data presented today at the European Society of Hypertension annual meeting showed patients (n=84) who received renal denervation treatment with Symplicity experienced a mean blood pressure reduction of -28/-10 mm Hg ($p<0.001$) at six months following treatment compared with baseline. No evidence of renal impairment was observed and renal function measures remained unchanged.

This pooled analysis included change in blood pressure at six months for all patients randomized to receive renal denervation with Symplicity at baseline (n=49), as well as patients in the control group (n=35) who met entry criteria and crossed over to the treatment group following assessment of the initial six month primary endpoint.

"The Symplicity clinical program is the longest and largest clinical program of its kind evaluating renal denervation in resistant hypertension," said Markus Schlaich, M.D., associate professor, head, Hypertension & Kidney Disease, Baker IDI Heart and Diabetes Institute in Melbourne, Australia. "This largest pooled analysis of controlled trial data at six months adds to the growing body of clinical evidence about the safety, effectiveness and sustainability of blood pressure reductions achieved with renal denervation."

Renal denervation therapy is a minimally invasive, catheter-based procedure that modulates the output of nerves that lie within the renal artery wall and lead into and out of the kidneys. These nerves are part of the sympathetic nervous system, which affects the major organs that are responsible for regulating blood pressure: the brain, the heart, the kidneys and the blood vessels.

The Symplicity(TM) system's catheter and proprietary generator and algorithms were carefully and specifically developed through years of clinical experience to enhance the safety and effectiveness of the renal denervation procedure. The Symplicity renal denervation systemhas been successfully used for nearly five years to treat more than 4,000 patients with treatment-resistant hypertension worldwide.

"New treatment guidance issued by the European Society of Hypertension on the use of renal denervation to treat resistant hypertension supports the use of technology that has demonstrated enduring safety and effectiveness safety in clinical studies," said Sean Salmon, Senior Vice President and President, Coronary & Renal Denervation, Medtronic. "We believe our Symplicity technology specifically designed for this procedure, coupled with encouraging results from the Symplicity clinical trials with three years of follow-up fall within these renal denervation treatment guidelines."

Six-Month Pooled Outcome Data from the Symplicity HTN-2 Study

The Symplicity HTN-2 triali is an international, multi-center, prospective, randomized, controlled study of the safety and effectiveness of renal denervation in patients with treatment-resistant hypertension. One hundred-six (106) patients were enrolled from 24 investigational sites. At baseline, the randomized treatment and control patients had similar high blood pressures: 178/97 mm Hg and 178/98 mm Hg, respectively, despite both receiving an average daily regimen of five antihypertensive medications. Patients in the control arm of the study were offered renal denervation following assessment of

the trial's primary endpoint at six months following randomization. Pre-randomization, all patients in the study had an office-based systolic blood pressure greater-than or equal to 160 mm Hg despite adherence to at least three antihypertensive medications given at optimal dosage. Mean change in systolic and diastolic blood pressure was -28/-10 mg Hg (n=84) from baseline (p<0.001) to six months post-treatment. Renal function measures were unchanged (eGFR: 82.1±20.2 vs. 80.5±18.9mL/min/1.73m2; p=NS). There was one right artery dissection in a crossover patient, which occurred while injecting contrast during angiography. No other serious procedure-related adverse events occurred.

ABOUT TREATMENT-RESISTANT HYPERTENSION

Treatment-resistant hypertension, defined as persistently high blood pressure despite three or more anti-hypertensive medications of different types including a diuretic, puts approximately 120 million people worldwide at risk of premature death from kidney disease and cardiovascular events such as stroke, heart attack and heart failure. Research suggests that nearly one third of treated hypertensive individuals are considered resistant to treatment.ii Additionally, these patients have a three-fold increase in risk of cardiovascular events compared to individuals with controlled high blood pressure.iii

ABOUT THE SYMPLICITY(TM) RENAL DENERVATION SYSTEM

The Symplicity(TM) renal denervation systemwas launched commercially in April 2010 and is currently available in parts of Europe, Asia, Africa, Australia and the Americas. The Symplicity renal denervation system is not approved by the U.S. Food and Drug Administration (FDA) for commercial distribution in the United States.

The Symplicity renal denervation system consists of a flexible catheter and proprietary generator. In an endovascular procedure, similar to an angioplasty, the physician inserts the small, flexible Symplicity(TM) catheter into the femoral artery in the upper thigh and threads it into the renal artery. Once the catheter tip is in place within the renal artery, the Symplicity(TM) generator is activated to deliver a controlled, low-power radio-frequency (RF) energy routine according to a proprietary algorithm, or pattern, aiming to deactivate the surrounding renal nerves. This, in turn, reduces hyper-activation of the sympathetic nervous system, which is an established contributor to chronic hypertension. The procedure does not involve a permanent implant.

The FDA granted Medtronic approval for the protocol for SYMPLICITY HTN-3, the company's U.S. clinical trial of the Symplicity renal denervation system for treatment resistant hypertension in August 2011. SYMPLICITY HTN-3 is a randomized controlled trial designed to evaluate the safety and effectiveness of renal denervation with the Symplicity renal denervation system in patients with treatment-resistant hypertension. The study will include approximately 530 treatment-resistant hypertension patients across up to 90 U.S. medical centers. More information about HTN-3 can be found at www.symplifybptrial.com.

In collaboration with leading clinicians, researchers and scientists worldwide, Medtronic offers the broadest range of innovative medical technology for the interventional and surgical treatment of cardiovascular disease and cardiac arrhythmias.

ABOUT MEDTRONIC

Medtronic, Inc. (www.medtronic.com), headquartered in Minneapolis, is the global leader in medical technology - alleviating pain, restoring health and extending life for millions of people around the world.

Any forward-looking statements are subject to risks and uncertainties such as those described in Medtronic's periodic reports on file with the Securities and Exchange Commission. Actual results may differ materially from anticipated results.

i Symplicity HTN-2 Investigators. "Renal sympathetic denervation in patients with treatment-resistant hypertension (The Symplicity HTN-2 Trial): a randomized, controlled trial." *The Lancet* (2010) 376: 1093-1909.

ii Egan, Brent M., et al. "Uncontrolled and Apparent Treatment Resistant Hypertension in the United States, 1988-2008." *Circulation* 124. 9 (2011): 1046-1058.

iii Doumas, Michael, et al. "Benefits from Treatment and Control of Patients with Resistant Hypertension."*International Journal of Hypertension* 2011 (2011) Article ID 318549, 8 pages, 2011. doi:10.4061/2011/318549.

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