Renal denervation – where do we stand in 2014?

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Recently, resistant hypertension has received a significant amount of attention, due to its high prevalence among treated hypertensive patients as well as controversies regarding appropriate diagnostics and the development of successful treatment methods. Current results suggest that patients with resistant hypertension are at a higher risk of cardiovascular events and end-organ damage compared to patients with adequately controlled hypertension. Therefore, the introduction of novel, effective treatment methods that would overcome treatment resistance to achieve target blood pressure and reduce the overall cardiovascular risk remains nowadays one of the most important issues in hypertension management. Undoubtedly, the introduction of renal denervation in 2009 was a significant advance. Three-year follow-up data from the Simplicity HTN-1 registry and randomized Simplicity HTN-2 trial confirmed the efficacy and safety of renal denervation in the treatment of resistant hypertension. These promising results led to the introduction of the Simplicity HTN-3 trial in the United States, which so far has enrolled over 500 patients. For the first time patients have also been randomized to a 'sham' group. Many other studies have shown beneficial effects of this method in the reduction of end-organ complications and on the course of co-morbidities such as obstructive sleep apnoea, cardiac arrhythmias, heart failure and metabolic disorders. Additionally, a Global Simplicity Registry involving 100 centres worldwide has been established with the aim to enrol and follow up 5000 patients undergoing renal denervation. In Poland 11 centres have been eligible to introduce this method under the National Denervation Registry scheme, which is coordinated by the Institute of Cardiology in Warsaw. Research development and the increasing experience with renal denervation has been endorsed by the European Society of Hypertension and the European Society of Cardiology as shown by expert consensus statements issued in 2012 and 2013 that delineate the treatment indications of this method.

A significant milestone since the introduction of renal denervation in the treatment of resistant hypertension was a short announcement recently published by Medtronic Inc. in mid- January regarding the Simplicity HTN-3 trial. The company mentioned that the study did not meet its major end-point, which was a reduction of systolic blood pressure after 6 months. Nonetheless, the company stressed that the secondary end-point has been met, namely patient safety. This short and incomprehensive announcement has caused international turmoil regarding the use of renal denervation in the treatment of resistant hypertension. However, during the Resistant Hypertension Course in Berlin, Germany (20–22 February 2014) leading experts in the field of interventional treatment of hypertension stated that studies so far have provided data proving the efficacy of renal denervation. So far, comprehensive data from the Simplicity HTN-3 trial remain unknown and further discussion on the role of renal denervation in the treatment of resistant hypertension based on this trial and other completed and ongoing studies will be possible when the results are published at the end of March 2014.

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