

# INNOVATIONS IN TREATING HYPERTENSION



**HYPERTENSION, OR HIGH BLOOD PRESSURE, IS A COMMON CONDITION IN WHICH THE FORCE OF THE BLOOD** against your artery walls is high enough that it may eventually cause health problems, such as heart disease, stroke or renal failure. High blood pressure typically develops over many years, and it affects nearly everyone eventually.

There are many factors that cause hypertension. The risk of high blood pressure increases as we age. Women are more likely to develop high blood pressure after menopause. Family history is relevant - high blood pressure tends to run in families. Being overweight or obese is a big factor. The heavier you are, more blood is required to supply oxygen and nutrients to the tissues. The chemicals in tobacco can also damage the lining of the artery walls.

The risk of coronary artery disease and stroke are directly related to blood pressure readings, and treatment to lower blood pressure is typically a combination of lifestyle changes (weight loss, regular exercise and a reduction in salt and alcohol intake) and drug therapy in the form of anti-hypertensives. Most patients need more than one drug, each taken at least daily. Some patients will need two to three drugs to control their blood pressure. In some patients blood pressure remains stubbornly high despite taking at least three different types of drugs. In a significant proportion of patients it is not possible to lower the blood pressure to target levels despite multiple drugs at high doses. People who have controlled high blood pressure but are taking four different types of medications at the same time to achieve that control are considered to have resistant hypertension.

A novel new treatment to lower blood pressure is now available using a technique called renal denervation. It has been known for many years that the sympathetic nervous system (part of the "fight or flight" response, which automatically regulates many body functions) is more active than normal in patients with hypertension. Sympathetic nerves supplying the kidneys contribute to the development and perpetuation of hypertension, triggering a number of chemical pathways which aggravate the situation.

Renal sympathetic efferent and afferent nerves are crucial for the initiation and maintenance of systemic hypertension and lie within and immediately adjacent to the wall of the renal artery. The concept of denervation of the renal sympathetic nerve to try to reduce blood pressure is old and was attempted, unsuccessfully, as far back as the 1950s. But recently there has been a resurgence in interest, and in particular in the use of a minimally invasive technique to block the sympathetic nerve supply to the renal arteries, the blood vessels supplying the kidneys. This is called renal sympathetic denervation.

Renal artery denervation is a catheter-based renal denervation currently available to treat patients whose blood pressure cannot be brought down with medication. This is a minimally invasive procedure that uses radio frequency waves to destroy the overactive sympathetic nerves running along the renal arteries which play a role in causing high blood pressure. This procedure takes around 40 minutes and requires an overnight stay in the hospital. A landmark clinical trial has been published in the prestigious medical journal *The Lancet* (in December 2010) demonstrating that renal denervation is both highly effective and very safe. The procedure offers the tantalizing possibility of a one-off treatment for hypertension. ■



**DR ERIC HONG | Cardiologist**

MB BCh (Ireland), MRCP (UK), FAMS (Cardiology) DIP CCNC  
(USA), FACC, FSCAI, FESC, FRCP

EH Heart Specialist

3 Mount Elizabeth #03-09 Mount Elizabeth Medical Centre. Tel:6736 1068  
[www.eheartspecialist.com](http://www.eheartspecialist.com)