

## Deep brain stimulation may help hard-to-control high blood pressure

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Researchers were surprised to discover what may be a potential new treatment for difficult-to-control high blood pressure, according to a case report published in the January 25, 2011, print issue of *Neurology*<sup>®</sup>, the medical journal of the American Academy of Neurology.

The report involved one man who received a deep brain stimulator to treat his pain from central pain syndrome that developed after a stroke. Deep brain stimulation uses a surgical implant similar to a cardiac pacemaker to send electrical pulses to the brain.

The 55-year-old man was diagnosed with [high blood pressure](#) at the time of the stroke, and his [blood pressure](#) remained high even though he was taking four drugs to control it.

While the electrical stimulation did not permanently alleviate his pain, researchers were surprised to see that stimulation decreased his blood pressure enough that he could stop taking all of the blood pressure drugs.

"This is an exciting finding as high blood pressure affects millions of people and can lead to heart attack and stroke, but for about one in 10 people, high blood pressure can't be controlled with medication or they cannot tolerate the medication," said Nikunj K. Patel, BSc MBBS, MD, FRCS, of Frenchay Hospital in Bristol, UK, who wrote the case study.

Patel noted that the decrease in blood pressure was a response to the [deep brain stimulation](#), and not a result of changes to his other

conditions.

The man's blood pressure gradually decreased after the deep brain stimulator was implanted in the periaqueductal-periventricular grey region of the brain, which is involved in regulating pain. His blood pressure was controlled for the nearly three years of follow-up; at one point he went back on an anti-hypertension drug for a slight increase in blood pressure, but that drug was withdrawn when the blood pressure went down again.

At one point researchers tested turning off the stimulator. This led to an increase of an average of 18/5 mmHg in blood pressure. When the stimulator was turned back on, blood pressure dropped by an average of 32/12 mmHg. Repeating the tests produced the same results.

"More research is needed to confirm these results in larger numbers of people, but this suggests that stimulation can produce a large, sustained lowering of blood pressure," Patel said. "With so many people not responding to blood pressure medications, we are in need of alternative strategies such as this one."

Provided by American Academy of Neurology

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