Yes, **Deep Brain Stimulation (DBS)** can significantly alter both your blood pressure and cerebral blood flow.[1] While DBS is primarily known for treating movement disorders like Parkinson's disease, its electrodes often sit near or within brain regions that control the **Autonomic Nervous System (ANS)**.

The effect on your cardiovascular system depends heavily on the specific "target" or location of the electrodes in the brain.[2]

1. Alterations in Blood Pressure (BP)[3]

The most profound effects on blood pressure are observed when DBS targets the **Periaqueductal Gray (PAG)** or the **Periventricular Gray (PVG)** in the midbrain.[4] These areas act as a "control center" for the body's unconscious functions.

- **Lowering BP (Depressor Response):** Stimulation of the **ventral** (lower) part of the PAG has been shown to decrease blood pressure. In experimental cases of "drug-resistant hypertension," patients have seen their systolic blood pressure drop by as much as **15–30 mmHg** immediately, with some chronic cases seeing even larger long-term reductions.
- **Raising BP (Pressor Response):** Conversely, stimulating the **dorsal** (upper) part of the same region can cause a sharp increase in blood pressure and heart rate.[5]

- **Parkinson's Treatment (STN-DBS):** When used for Parkinson's (targeting the Subthalamic Nucleus), DBS can sometimes help stabilize **orthostatic hypotension** (the dizzying drop in BP when you stand up), though results vary between patients.[6]

2. Alterations in Blood Flow

DBS changes blood flow in two distinct ways: local "perfusion" at the site of the electrode and "network" changes in connected brain regions.

- **Increased Local Blood Flow:** Activating the stimulator typically increases **Regional Cerebral Blood Flow (rCBF)** at the site of the electrode.[7] For example, stimulating the thalamus for tremors increases blood flow in that specific area of the thalamus.[8]
  +1

- **Cortical Network Changes:** DBS doesn't just affect the spot it touches; it sends signals through neural circuits to the surface of the brain (the cortex). Imaging (like PET or SPECT scans) shows that DBS can increase blood flow in the **Supplementary Motor Area (SMA)** and the **Anterior Cingulate Cortex**, which helps the brain better coordinate movement.[9]

- **Vascular Side Effects:** In rare cases, sudden changes in stimulation settings can cause temporary "vasomotor" symptoms, such as flushing, sweating, or a sensation of heat, due to rapid shifts in how blood is distributed.

Summary Table: DBS Effects by Location

Brain Target	Primary Use	Effect on Blood Pressure	Effect on Blood Flow
Ventral PAG	Chronic Pain	**Decreases** BP	Increases local midbrain flow
Dorsal PAG	Chronic Pain	**Increases** BP	Increases local midbrain flow
STN	Parkinson's	Stabilizes fluctuations	Increases flow to motor cortex
Vim (Thalamus)	Essential Tremor	Minimal effect	Increases flow to thalamic circuits

Important Clinical Note

Because of these effects, neurosurgeons and neurologists carefully monitor a patient's vital signs during the "programming" phase. If a patient experiences a sudden spike or drop in blood pressure when the device is turned on, it is often a sign that the electrical field is spreading into a nearby autonomic pathway, requiring a slight adjustment of the settings.

Would you like more information on how DBS is being researched specifically as a treatment for high blood pressure?