

Treatments for Debilitating Migraines Continue to Evolve



Roughly 12 out of every 100 people experience a migraine headache at some point in their lives. The distinctive symptoms have been described since ancient times. Migraines differ from more common tension headaches, which are caused by muscle tension to the shoulders, neck, or scalp. Migraine attacks usually deliver a pulsating pain to one side of the head, and can last from four hours to up to several days. Migraine symptoms may include changes in vision, nausea, vomiting, sensitivity to normal levels of light or sound, and pain that worsens upon moving.

Up to 6% of men and 18% of women experience migraines, which also strike about 10 – 15% of children under age 18.

Normal activity is difficult, with pain ranging from moderate to severe. More than half of migraine sufferers have at least one attack per month. Before or during an attack, about one out of five people experience an aura – changed vision or a disturbance to other senses, coordination, or speech.

For some migraine sufferers, certain activities or foods may bring on an attack. Migraine attacks have been linked to consuming red wine or beer, cheese, chocolate, citrus fruits like oranges, and tea or coffee. Stress can also be a trigger.

Foods that may trigger an attack are relatively high in amines, which can alter blood flow in the brain. Chocolate contains phenylethylamine (as well as other potential triggers, theobromine and caffeine). Citrus fruit contains octopamine; red wine and beer contain histamine. Red wine and beer also contain tyramine, as do oranges and other citrus, cheese (especially aged, strong or Cheddar varieties), coffee, and other produce or protein sources.

Since the severity and frequency of migraine attacks can interfere with normal activities, the condition can dramatically impact work, family and social life. Estimates place the annual cost of migraine at \$14 billion, according to the U.S. National Academy of Sciences' 2011 report "Relieving Pain in America". The World Health Organization, meanwhile, ranks migraine 19th in causes of years lived with disability (YLDs).

Historical descriptions of migraines go back as far as 6,000 years ago. In ancient Greece, for example, the physician Hippocrates wrote about visual disturbances caused by migraine. Today, researchers are still uncovering new information about the condition. A genetic link for migraine was discovered in 2010.

Migraine medications include anti-spasm medications, hypertension drugs, and antidepressants with analgesic properties. However, these can cause side effects, such as nausea, drowsiness, or rashes.

Besides medication options, some patients choose to be treated with Botox injections at the back of the neck, where the occipital nerves may play a role in chronic migraines. Not everyone finds benefit from the injections, however, and repeat injections are required.

Some migraine patients who do not find relief or cannot tolerate standard treatments may try a therapy originally used to treat occipital neuralgia. Since the occipital nerves were a source of that pain, in the 1990s, specialists began to apply a therapy directed to those nerves.

The technique delivers mild electrical currents through an array of small electrodes, placed under the skin, near the base of the skull, above the occipital nerves. It is believed that electrical stimulation to the occipital nerves stimulates release of natural pain-relief chemicals, quiets over-excitability nerves, limits pain messages sent to the brain, and may also enhance local blood circulation. The stimulation is one of a family of therapies known as neuromodulation. Since the treatment addresses nerves on the periphery rather than in the brain or spine, it is called peripheral nerve stimulation, or PNS. A neurostimulation system is first tried on a temporary basis, and then permanently implanted in patients who benefit.

In 2003, occipital nerve stimulation using PNS was extended to treat chronic migraine. The mild electrical impulses are delivered by a small, pacemaker-like unit that is often implanted in a pocket the doctor creates under the skin on the chest wall, near the collarbone.

To conduct the impulses, a thin extension wire is inserted beneath the skin along the neck and behind the ear, connecting to the electrodes at the nerves to be treated. Patients receive a handheld remote control that they use to turn stimulation on and off, using settings adjusted by the physician.

Although therapeutic uses of electrical neurostimulation are still expanding, the potential benefit of relieving pain – and migraines – with electrical stimulation was noted centuries ago. In Roman times, for instance, medical historians say that the physician-philosopher Galen recommended using the shock of a common ray, the Mediterranean torpedo fish, to relieve migraine pain.

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Please note: *This information should not be used as a substitute for medical treatment and advice. Always consult a medical professional about any health-related questions or concerns.*
