Occipital Stimulation

Overview

Research is growing in the area of occipital nerve stimulation (ONS) for the relief of migraine headaches, particularly in the population of patients whose headaches do not react to previous treatments. Many studies of ONS have been directed toward the treatment of occipital neuralgia. Some additional studies are available for gauging the effect of ONS on migraine and other types of headache. Efficacy and safety data in the literature are mostly retrospective analyses, case series, or uncontrolled trials; however, the results of systematic randomized trials to test ONS for migraine will soon be available.

Science

Occipital nerve stimulation is accomplished by using an asymmetric electrical pulse applied to the tissue surrounding the occipital nerve, a method that depolarizes the nerve and sends electrical impulses anterograde and retrograde through the nerve, with the anterograde signals ending in the trigeminocervical complex. The technique appears to alleviate the frequency and severity of migraines in some patients.

Procedure

Technically, the method requires an electrical lead to be advanced through a needle until it is adjacent to the nerve. Patient perception of paresthesia (tingling) is used to optimize positioning of the contacts on the lead. The leads are fastened to the fascia after a skin incision, and tunneled to a location in the trunk where the implantable generator is placed in the subcutaneous fat. Bilateral leads generally have been found to be superior to unilateral leads in clinical practice.

PSA Pain Specialists of Austin

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Phone: 512-485-7200
Fax: 512-485-7224
PAINSPECIALISTSOFAUSTIN.COM