

Biocular Transcerebral Iontophoresis

What is it?

Biocular transcerebral iontophoresis (BTI) is a treatment that was developed around 1920 by Georges Bourguignon, M.D., D.Sc., who was a neurologist and neurophysiologist and a member of the French Academy of Medicine. It was first used to treat World War I soldiers who were suffering from sequelae of head injuries. BTI treatments have been successfully used with those who have affections of the brain not only following head trauma (such as epilepsy or paralysis), but also due to inflammation (such as multiple sclerosis), infection (encephalitis and Bell's palsy), stroke (hemiplegia) and hypoxia (cerebral palsy or due to respiratory arrest). Other conditions that have also been helped are sequelae from damage to the eyes (such as retinitis and optic neuritis) and spinal cord (such as following spinal cord injury, or inflammation, like transverse myelitis).

Dr. Joseph Saine who learned this method of treatment from Professor Bourguignon supervised thousands of BTI treatments over a period of 50 years in his clinic in Montreal. In particular, he treated many patients with multiple sclerosis and epilepsy with marked improvement.

Principles of treatment

A tiny, painless and barely perceptible direct electrical current is transmitted from the eyes through the brain to the neck and back.

This micro-electrical current carries different ions (i.e., calcium, magnesium, iodide, etc.) through the brain and spinal cord from one electrode to the other.

The rehabilitation of neural tissue and restoration of function are likely achieved by decreasing scar tissues in the eyes, brain or spinal cord and improving circulation which helps to regulate function and repair neural tissue. Bio-medical researchers have also demonstrated that DC electrical fields can stimulate regeneration of nerve cells.

Method

The duration of the treatment is approximately 30 minutes and is performed at first once or twice a day for 5 consecutive days. The frequency of treatment is decreased afterwards to 3 times a week, then once a week to once a month. During a BTI treatment, patients must lie quietly for the length of the treatment and therefore it is not always well-suited to children under 5, unless the child is particularly cooperative or when the treatment can be administered during sleep.

Prognosis

Positive results following BTI treatments are usually noticed within the first few treatments and are, as a rule, cumulative and lasting. Treatments are continued as long as the patient is improving.

What improves in any individual patient is not predictable beforehand, as benefits are limited by the degree of the permanency of the neural tissue lesions.

Side Effects

BTI treatments have been used on many thousands of patients since 1920. Side effects from BTI treatments when administered by a well-trained person are minimal to none and, most commonly, only mild and short-lasting skin irritations.

Case examples

Case 1 – A 48 y.o. woman who had been suffering from multiple sclerosis for 16 years had lost most of the function in her left hand and arm for at least 5 years. In 1996, she received three BTI treatments and recovered 70% of the function in her left hand and arm. In 1998, she returned for another week of treatments and recovered another 20% of function in her left hand and arm and 30% of function in her left leg. In 2000, she received another series of treatments with further improvements in her left leg.

Case 2 – F.T. is a 47 y.o. woman who was affected with Bell's palsy since 1972 and had been legally blind since the age of 2 following an infection which affected her eyes ("retina were burnt from playing in the sun while having measles"). In 2000, she received eight BTI treatments within a week and recovered her sight (225/10 to 50/20) and 90% of her facial function. She reported that for the first time in 28 years she was able to blow out candles on her birthday cake.

Case 3 – A 20 y.o. male who at 18 had a sudden heart arrest with loss of breathing for 8 minutes. After this incident, he was left completely paralyzed on his left side (sensory and motor function), and had complete loss of memory and language. After 1 1/2 years of physical and speech therapy and special tutoring, he improved to about 50% and remained at that level for the next several months. Dramatic mood swings and insomnia which appeared after his heart arrest did not improve in spite of therapy. After the first BTI treatment, the mood swings and the insomnia disappeared and his personality returned to the one he had prior to the sudden heart arrest. After one week of BTI treatments, he had recovered most of his memory, speech and motor function.

Case 4 – A 56 y.o. man had been suffering from intractable burning pain on one side of his body following a spinal cord injury which occurred ten years before. He experienced within a few BTI treatments a 50-75% relief of pain, which lasted for at least the next three months.

Case 5 – A 31 y.o. woman experienced a sudden paralysis on her left side with loss of sensory function. She was diagnosed with transverse myelitis and after 3 months of rehabilitation therapy she was told she would not recover the rest of the function that had been lost. Six months later, she received nine BTI treatments within one week and experienced a dramatic and lasting recovery of about 65% of her sensory and motor function.

Case 6 — Q. D. was normal until he had a seizure at three months old. His EEG was abnormal and was put on Phenobarbital. He had no family history of seizure, neither history of head trauma nor other etiologic factors related to epilepsy. As he continued to have seizures, he was hospitalized and was diagnosed with intractable malignant migrating seizures of infancy, a rare seizure disorder characterized by runs of seizures arising in an apparently random manner from multiple loci within either hemisphere. More medications were added to the Phenobarbital, including Sabral, Capra, Trileptol, Dilantin and Lorazepam but the severity and frequency of the seizures kept increasing. Antiepileptic drugs are ineffective and outcome is very poor in these infants. As a result of being on all these medications, he had become limp and completely unresponsive to his environment. After three months of hospitalization, the parents decided to return home against medical advice and stop all medications. They were told that their son would likely die within 24 hours. Q.D. experienced severe withdrawal symptoms for the first two days, slowly became more responsive and the seizures diminished in frequency and severity.

By the time Q.D. received his first BTI he was 19 months old and was having an average of 12 grand mal seizures a day, each lasting from 1-7 minutes. About once a month, he had a “screaming Mimi’s” seizure, which “makes your blood curdle and hair crawl.” This type of seizure lasts about 8-9 hours characterized by a series of sudden continuous 45 minutes screams with intermittence of 10 minutes of silence. They usually begin around 7 or 8 in the evening and last until morning. He was taking 1.5 mg of Lorazepam, as it was the only medication that had an impact on the seizures. After his first BTI treatment, he had only three very mild seizures, lasting about 15-20 seconds for the next 2½ weeks. At this time, Lorazepam was withdrawn but as the seizures started returning Lorazepam was resumed and a few BTI were given. The seizures disappeared again. For the next six months, he had only one mild seizure about every six to eight weeks. As soon as he would experience one of these seizures, one BTI was given and no second seizure would follow, which had the parents exclaim that BTI was “the greatest thing in the world.” He never experienced another “screaming Mimi’s” seizure after receiving his first BTI treatment seven months earlier.