

Treatments for Depression, Anxiety, and Stress Using REAC Neuromodulation, a Retrospective Comparison Study

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Abstract

The goal of this retrospective study was to examine the effects of two alternative modes of administration of the Neuro Psychophysical Optimization (NPPO) neuromodulation treatment, both of which were used with Radio Electric Asymmetric Conveyor (REAC) biotechnology devices. Both modalities attempt to improve techniques for dealing with environmental stressors and optimizing the allostatic response to exposure. This allows for the reduction of dysfunctional adaptive behavior patterns, which underpin many neuropsychological symptoms and diseases, as well as the improvement of depression, anxiety, and stress symptoms.

Keywords: Neuropsychological symptoms

Introduction

Electricity has been employed as a treatment technique in several emotional and neurological diseases since ancient times. Of course, the nature of the electrical phenomenon was unknown at the time, as was how to artificially manufacture it. Despite these restrictions, it was previously thought that electricity produced naturally by some animals, particularly so-called electric fish such as torpedo rays found in the Mediterranean Sea, may be used to cure certain health conditions such as migraines, sadness, and epileptic seizures. Knowledge has advanced over time, resulting in a wide range of neuro stimulation technologies and procedures that use electric current and electromagnetic fields in diverse ways. The oldest of these is electrical convulsion treatment. Transcranial magnetic stimulation is a more recent technique.

Neuromodulation therapies are administered using Asymmetric Conveyor Probe electrodes in the context of REAC technology (ACP). These can be punctiform for treating small regions or planar for treating larger areas. The generic term for REAC neuromodulation treatments for depression, anxiety, and stress symptoms is Neuro Psycho Physical Optimization (NPPO). The term NPPO is widely used for therapy with punctiform ACP placed on the auricle, but treatment with planar ACP administered in the cervical area is known as NPPO-CB, as detailed in a prior study conducted as an arm of the same research project. The NPPO therapy takes around three seconds and is intended for use on large populations, such as in social preventative efforts against depression, anxiety, and stress-related behaviors and symptoms. The NPPO-CB takes around 4 minutes and is best utilized when signs of a depressive, anxious, or stress state are accompanied with

tightness in the shoulders and neck. Indeed, the relationship between depression, anxiety, and stress, as well as the cervical/cervicobrachial area,

is extensively documented in the literature. Furthermore, it has been demonstrated that this association exists at all ages. Tension and pain in the neck and shoulders as a result of a depressive, anxious, or stressful episode is a regular occurrence in anyone's life. Several approaches have been proposed to treat this symptomatic picture, including cervical treatments with Transcutaneous Electrical Nerve Stimulation (TENS), Hot Packs (HP), Pulsed Electro Magnetic Fields (PEMF), Far-Infrared Radiation (FIR), Low-Frequency Stimulation (LFS).

Surprisingly, these treatments focused at addressing a primarily physical symptom, such as neck and shoulder stiffness and pain, had a psycho-emotional effect, resulting in an improvement in the melancholy, anxious, and stressful states. The physiological basis for this clinical correlation could be found in the alarm reaction, which is the body's primary response when under stress. When triggered by acoustic stimuli, this response is known as the startle response, and when triggered by an aversive stimulus, it is known as the avoidance response. The alarm reaction is a fundamentally unconscious defensive reaction in humans, as in all animals, in response to unexpected, rapid, or threatening inputs, marked by enhanced autonomic and neuroendocrine activation and certain behavior patterns that also involve postural attitude. The low road of Le Doux first and subconsciously processes the alarm/stress reaction. The process of constructing external stimuli in the low road entails that these are initially received by the sensory organs, transferred to the thalami, and then sent to the amygdalae for additional information processing.

From here, new bioelectric impulses transmit messages to the effector organs, prompting the body's response in terms of behavior and action targeted at expressing emotion. The low road conduct has its own unique function in terms of survival, namely that it is preferable to react to potentially dangerous events as if they were real, rather than not react at all. As a result, the low road is a faster but less thorough method of processing the signal. It is a path that enables us to instantly activate our bodies and respond to a threat. All of this causes the entire organism to maintain an alert reaction, which is not consciously recognized by the individual but manifests itself.

As a result, the alarm/stress reaction is always processed unknowingly by the high road of Le Doux. The high road process of elaborating external stimuli suggests that these are initially received by the sense organs, relayed to the thalami, and then transferred to the neocortex. Fresh impulses are generated in the cerebral neocortex and delivered to the amygdalae, which process and restart new impulses towards the effector organs for emotional responses and other body reactions. As a result of the high road elaboration of environmental inputs, the higher cognitive systems of the brain can carry out a more extensive examination of the stimulus, including linkages with other stimuli and recollections of prior experiences, resulting in a more regulated emotional reaction. The NPPO modality has been the most widely employed in clinical practice, owing to the short administration period (a few seconds compared to around four minutes for the NPPO-CB modality). Another factor that reduced the usage of the NPPO-CB treatment modality was the difficulty of preparing and putting the prior aluminum ACP on the cervicobrachial area. The NPPO-CB administration modality is faster for the doctor and more comfortable for the patient because of technological advancement that has permitted the manufacture of new ACPs with particularly soft materials and predetermined forms. This advancement has resulted in a larger spread of NPPO-CB in clinical application.

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