

The Auricular Neuromodulation as a noninvasive neurostimulation method for the treatment of pain

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The Auricular Neuromodulation (ANM) is a therapeutic technique based on the stimulation of the outer ear through different methods (microneedles, beads, electrical stimulation); it can be considered the modern and scientific evolution of the auricular acupuncture. The ANM is scientifically based on the particular innervation of the ear, mainly supplied from the cranial trigeminal and vagus nerves and from the cervical plexus [1, 2]. Therefore, through the ANM we can get a noninvasive vagal, trigeminal and spinal stimulation-modulation, which allows to treat several diseases or functional disorders.

In order to further validate the effectiveness of auricular stimulation in the treatment of pain, a study on 100 patients (20-50 y.o., 58 m and 42 f) was conducted at CERNATEC – Research Center on Auricular Neuromodulation and Complementary Therapies of the University of Sassari. The patients, suffering from acute pain in the upper limb, were divided by computerized randomization into 2 groups of 50. All the participants received auricular stimulation by a single needle positioned on a single ear point, homolateral to the pain site.

In the patients of the group A the point was identified as the most sensitive to pressure (Pressure pain test) in the scaphoid fossa (auricular area corresponding to the upper limb).

In the patients of the control group B, the needle was placed on an “ineffective” point on the lobe.

The pain was evaluated by utilizing the Numerical Rating Scale. The NRS was administered 5 minutes before the Pressure Pain Test (T0) and at the times T1, T2 and T3 (1 hr, 12 hrs and 24 hrs after the auricular stimulation). Significant differences in pain score were observed at T2 and T3; pain reduction is present in both groups, but is significantly higher in the group treated on the effective ear point. This shows that the stimulation of the auricle always evokes a neuromodulatory response, but the result is much more effective if the stimulation is carried out in well selected areas of the auricle. The study also confirms the efficacy of auricular stimulation in the treatment of non-neuropathic nociceptive pain.

References

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Key words

Auricular neuromodulation, noninvasive neurostimulation, ear innervation, pain therapy.