

Comparison of the Effects of Transcutaneous Electrical Nerve Stimulation and Acupuncture in Osteoarthritis Patients

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Introduction

Pain is a distressing sensory and emotional sensation that is connected to, or similar to, existing or potential tissue injury. In order to get over the difficult and overly simplified categorization in simply neuropathic or purely nociceptive pain, the classification of pain has lately undergone revision. To describe the confluence of nociceptive, neuropathic, and nociplastic pain in this situation, the term "mixed pain" has just lately been used. The simultaneous presentation of nociceptive, neuropathic, and nociplastic pain in this complicated clinical presentation may be phenotypically variable. A syndrome characterised by the concurrent occurrence of particular symptoms that can be related to both nociceptive and neuropathic pain has lately been given the name "mixed pain." Although mixed pain is not included in the most recent IASP classification, research on its prevalence in a number of pathological illnesses, including cancer, osteoarthritis, postsurgical pain, and low back pain (LBP), is growing tremendously. Additionally, mixed pain associated with these persistent pathological disorders increases disability and impairment in terms of both physical function and health-related quality of life (HRQoL) [1].

Description

Recent suggestions for a possible therapeutic strategy for the management of mixed and refractory pain in many clinical circumstances have focused on the mini-invasive neuromodulation approach known as percutaneous electrical nerve stimulation (PENS). This innovative method may also be utilised to lessen pain perception in a number of musculoskeletal conditions of importance to Physical Medicine and Rehabilitation (PRM), such as LBP, total knee replacement, chronic pain after amputation, opioid-resistant cancer pain, and overactive bladder in children. There is still a dearth of evidence in the literature regarding PENS's role in the management of neuropathic or mixed pain in musculoskeletal disorders that are not responsive to pharmacological treatments, despite the fact that PENS has demonstrated effectiveness in reducing unspecified pain in several chronic pain conditions [2].

Pharmacological and non-pharmacological techniques are used to treat pain in a biopsychosocial manner. In medicine, physical therapy, and nursing, therapeutic neuromodulation techniques are advised for pain management because they send thermal, mechanical, chemical, and electrical stimulation to the body. Transcutaneous electrical nerve stimulation (TENS) and TENS-like methods are examples of non-invasive electrotherapeutic neuromodulation techniques. Invasive approaches include percutaneous electrical nerve stimulation, electroacupuncture, spinal cord stimulation, and deep brain

stimulation. Transcutaneous electrical nerve stimulation (TENS) is the process of stimulating peripheral nerves by using a portable device to send pulsed electrical currents over the intact surface of the skin using conducting electrodes. Regardless of the source of the pain (e.g., nociceptive, neuropathic, or nociplastic), TENS is generally utilised to treat its symptoms (i.e., inpatient, outpatient and palliative). Xerostomia, peripheral ischaemia, Reynaud's syndrome, dementia, stroke (neuromuscular condition and neglect), oedema, wound healing, tissue regeneration (e.g., nerve, soft tissue, skin, and bone), reduction of tissue necrosis, sleep, fatigue, depression, and coma are other conditions that can be treated with TENS. This evaluation does not address the use of TENS for these non-painful conditions [3].

A widespread and incapacitating symptom linked to knee osteoarthritis is chronic knee pain (KOA). KOA is a musculoskeletal disorder that causes joint inflammation, subchondral bone remodelling, increasing articular cartilage loss, and the development of osteophytes. As a result, the condition increases disability and lowers HRQoL. Therefore, a quick therapeutic approach requires an early diagnosis of KOA. Rehabilitation and pharmaceutical therapies including acetaminophen, NSAIDs, and opioids may be used as non-surgical treatments for symptomatic KOA. Long-term anti-inflammatory therapy is however hampered by a number of side effects, including stomach lesions and a shown steady decline in efficacy. In individuals who did not respond to acetaminophen and/or NSAIDs, intra-articular injections of hyaluronic acid and glucocorticoids may be used as an alternative since they appeared to reduce pain and restore the viscoelastic qualities of the synovial fluid [3-5].

Conclusion

Therefore, massive operational challenges, it could be necessary to accept that insufficient proof regarding efficacy cannot be produced. TENS is not the only solution to this problem. The majority of nonpharmacological technique-based analgesic interventions, such as acupuncture, electrophysical agents (heat, cold, ultrasound, pulsed-shortwave, low-level laser), and a wide range of manual therapies, have long been shrouded in controversy regarding their ability to reduce pain. The most recent research on PENS's potential uses in chronic mixed and refractory pain suggests that it may have a place in the multimodal rehabilitation of chronic musculoskeletal illnesses. Future randomised controlled trials are necessary to verify the effectiveness of PENS in the challenging management of chronic and refractory pain syndromes.

Conflicts of Interest

The authors declare no conflict of interest.

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