Chronic pain

Definition

Pain that has lasted longer than three to six months, though some theorists and researchers have placed the transition from acute to chronic pain at 12 months.

Others apply acute to pain that lasts less than 30 days, chronic to pain of more than six months duration, and subacute to pain that lasts from one to six months.

A popular alternative definition of chronic pain, involving no arbitrarily fixed duration, is "pain that extends beyond the expected period of healing".

Epidemiology

Chronic pain remains a serious public health problem. A survey estimates that almost one in five (19%) adults in Europe suffer from chronic pain with almost two-thirds of chronic pain patients reporting inadequate pain control at times ¹⁾.

Around 20% of patients undergoing surgery for lumbar radiculopathy develop chronic pain after surgery, leading to high socio-economic burden. Current perioperative interventions, including education and rehabilitation, are not always effective in preventing prolonged or chronic postoperative pain and disability.

Goudman et al.,proposed a shift in educational intervention from a biomedical towards a biopsychosocial approach for people scheduled for lumbar surgery. Pain neuroscience education (PNE) is such a biopsychosocial approach which aims at decreasing the threat value of pain by reconceptualizing pain and increasing the patient's knowledge about pain.

In a a paper they provides a clinical perspective for the provision of perioperative PNE, specifically developed for patients undergoing surgery for lumbar radiculopathy. Besides the general goals of PNE, perioperative PNE aims to prepare the patient for post-surgical pain and how to cope with it ²⁾.

Classification

Chronic pain can be classified in various ways based on different criteria. Here are some common classifications of chronic pain:

Duration:

Chronic Persistent Pain: Pain that persists beyond the normal time expected for healing (typically more than 3 to 6 months). Chronic Recurrent Pain: Pain that recurs episodically over time, with periods of pain-free intervals in between. Etiology (Cause):

Nociceptive Pain: Arises from damage to tissues (e.g., bones, muscles, organs) and activates pain receptors (nociceptors). Examples include arthritis pain and mechanical back pain. Neuropathic Pain: Caused by damage or dysfunction of the nervous system, leading to abnormal processing of pain signals. Examples include diabetic neuropathy and post-herpetic neuralgia. Mixed Pain: Involves both nociceptive and neuropathic components. For example, in conditions like chronic low back pain with a neuropathic component. Location:

Localized Pain: Confined to a specific area or region of the body, such as localized joint pain. Widespread Pain: Pain that affects multiple areas of the body, such as in fibromyalgia.

Complex chronic pain

Etiology

The corpus callosum substructure region has extensive damage in chronic pain, and the selective microstructural integrity damage was particularly manifested by changes in axons and myelin sheath in the genu and body of corpus callosum ³⁾.

Scales

West Haven-Yale Multidimensional Pain Inventory

Treatment

see Chronic pain treatment.

Case series

A randomized double-blinded clinical trial with a crossover research design. Patients with an already implanted Dorsal Root Ganglion Stimulation Therapy DRG-S system was included and randomly tested with 4 Hz, 20 Hz, 60 Hz, and sham stimulation. Amplitude was adjusted to subthreshold values for each frequency. Each frequency was tested for 5 days, followed by a 2-day washout period. Patients were assessed using VAS, McGill Pain Questionnaire, EQ-5D-5L, and Beck Depression Inventory.

Seventeen patients were included. The time between inclusion in this study and the primary implant was 32.8 months. The baseline stimulation frequency was 20 Hz in all patients. The mean baseline pain intensity was VAS 3.2 (SD 2.2). With 4-Hz stimulation, VAS was 3.8 (SD 1.9), with 20 Hz VAS 4.2 (SD 2.0), and with 60 Hz VAS 4.6 (SD 2.7). Worst pain control was seen with sham stimulation with a VAS of 5.3 (SD 3.0). Stimulation with 4 Hz achieved lower VAS scores, but this was only statistically significant when compared to sham (p = 0.001). A similar trend favoring 4-Hz stimulation was seen using the Beck Depression Inventory, but in this case, no statistical significance was found. Outcomes of McGill Pain Questionnaire and EQ-5D-5L favored 20 Hz stimulation, but again without statistical

Low-frequency stimulation was not significantly better than classic 20-Hz stimulation in relieving pain intensity; the study might however be underpowered. Longer washout and observational periods might also be necessary to show clear differences in frequency response ⁴⁾.

Case reports

Soloukey S, de Rooij JD, Drenthen J, De Zeeuw CI, Huygen FJPM, Harhangi BS. Unilateral L2-Level DRGstimulation Evokes Bilateral CPG-Like Motor Response in a Patient with Chronic Pain. Brain Stimul. 2020 Oct 7:S1935-861X(20)30260-6. doi: 10.1016/j.brs.2020.09.021. Epub ahead of print. PMID: 33038598⁵⁾.

Lawson McLean et al. from the Division of Functional and Restorative Neurosurgery, Department of Neurosurgery, Jena University Hospital, present the case of a chronic pain patient treated surgically for degenerative cervical myelopathy secondary to cervical spinal stenosis. Following this surgery, the patient experienced an intractable postoperative pain syndrome that had anatomical borders, an intensity and a character that was different to the background chronic pain from which they suffered.

They successfully implanted a cervical spinal cord stimulation (SCS) lead in the period following their stenosis surgery, which had good therapeutic effect on the postoperative-onset pain. To the best of the knowledge, this is the first description of SCS having a strong positive effect on an acute exacerbation of neuropathic pain. At follow-up 12 months later, assessment of the patient's pain diary revealed a modal pain intensity of NRS 3/10 over the preceding three months. The Brief Pain Inventory (Short Form) scores at this point in time were 10/40 in the pain severity domain and 18/70 in the interference with function domain, demonstrating the long-term effectiveness of this SCS strategy. While SCS has hitherto been untested as a therapy for acute-onset pain, this report demonstrates its utility as a salvage treatment in select cases of uncontrollable postoperative pain ⁶.

1)

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