

A Review on Pain Management in Chronic diseases and Suggested Alternative Therapies

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ABSTRACT: Pain management or pain control is an important part of medical practice, and physicians often prescribe analgesics to enhance clinical outcomes and patient's quality of life. Chronic pain is a common public health hassle that has an unfavorable impact on patient health, quality of life, and function, and poses a good sized socioeconomic burden. It is a prevalent problem that is related to bad functioning amongst comorbid sufferers. The study of Acute and Chronic pain, Epidemiology, Risk elements and Pain scales were defined on this evaluate. Managing multiple chronic health conditions is a major challenge. The motive of this study is to manage the pain in different chronic conditions and endorse opportunity cures.

Keywords: Pain management, Pain score, chronic pain, Analgesics, pain scales, anti-depressants, acupressure.

I. INTRODUCTION

Pain is a distressing feeling often caused by intense or damaging stimuli. The International Association for the Study of pain defines pain as "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage." In medical diagnosis, pain is regarding as a symptom of an underlying condition.^[1]

Types of pain

Based on duration pain is of two types:^[2]

1. Acute pain
2. Chronic pain

Acute pain

Acute pain usually comes on suddenly and is caused by something specific. It is sharp in quality. Acute pain usually does not last longer

than six months. It goes away when there is no longer an underlying cause for the pain.^[3]

Chronic pain

Pain that lasts for more than six months, even after the original injury has healed, is considered chronic. Popular alternative definition of **chronic pain**, involving no arbitrarily fixed durations, is "pain that extends beyond the expected period of healing". Chronic pain may be classified as cancer pain or else as benign.^[3,4]

Chronic pain may be divided into

- 1) Nociceptive and
- 2) Neuropathic.

1. Nociceptive pain^[5]

Nociceptive pain can be thought of as pain associated with tissue injury or damage or even potential damage. Nociceptors are sensory endings on nerves that can be excited or sensitized and signal potential tissue damage.

Nociceptive pain includes two types:

- a) Somatic pain:** Pain that originates from skin, muscles, bone, or connective tissue. The sharp sensation of a paper cut or aching of a sprained ankle are common examples of somatic pain.
- b) Visceral pain:** Visceral pain is the pain that results from the activation of nociceptors of the thoracic, pelvic, or abdominal viscera (organs). Characterized by cramping, throbbing, pressing, or aching qualities.

EX: Labor pain, angina pectoris or irritable bowel.

2. Neuropathic pain^[5, 6]

Neuropathic pain results from damage to or dysfunction of your nervous system. This results in damaged or dysfunctional nerves misfiring pain signals. This pain seems to come out of nowhere, rather than in response to any specific injury.

Neuropathic pain includes two types:

a) **Peripheral:** Pain caused by a lesion or disease of the peripheral somatosensory nervous system is common and challenging chronic pain syndrome, with a range of diverse etiologies.

b) **Central:** Pain initiated or caused by a primary lesion or dysfunction in the central nervous system and can be included under the broad term of neuropathic pain.

The International Classification of Disease, Eleventh Revision (ICD-11) suggests seven categories for chronic pain.^[7]

1. Chronic primary pain: defined by 3 months of persistent pain in one or more regions of the body that is unexplainable by another pain condition.
2. Chronic cancer pain: defined as cancer or treatment related visceral, musculoskeletal, or bony pain.
3. Chronic post-traumatic pain: pain lasting 3 months after injury or surgery, excluding infectious or pre-existing conditions.
4. Chronic neuropathic pain: pain caused by damage to the somatosensory nervous system.
5. Chronic headache and orofacial pain: pain that originates in the head or face, and occurs for 50% or more days over a 3 months period.
6. Chronic visceral pain: pain originating in an internal organ.
7. Chronic musculoskeletal pain: pain originating in the bones, muscles, joints or connective tissue.

Epidemiology of chronic pain

Chronic pain varies in different countries effecting anywhere from 8% to 55.2% of the population. It affects women at a higher rate than men, and chronic pain uses a large amount of healthcare resources around the globe.^[8, 9]

In the United States, chronic pain has been estimated to occur in approximately 35% of the population, with approximately 50 million Americans experiencing partial or total disability as a consequence.^[10] According to the Institute of Medicine, there are about 116 million Americans living with chronic pain, which suggest that approximately half of the American adults have some chronic pain condition.^[11]

In India, there is a serious dearth of data on pain. In 2007, studies were conducted in 6 states mainly-Assam, Karnataka, Maharashtra, Rajasthan, Uttar Pradesh and west Bengal. The study collected evidence on various health conditions. One of this

conditions was arthritis, a condition commonly known to cause pain and stiffness of joints.^[12]

Causes of Chronic pain syndrome^[13]

- Endometriosis
- Irritable bowel syndrome
- Acid reflux or Ulcers
- Cancer
- Lyme disease
- Nerve damage
- Fibromyalgia
- Muscle strains and sprains
- Headache
- Back pain
- Arthritis
- Surgery
- Repetitive stress injuries
- Interstitial cystitis
- Vulvodynia
- Chronic fatigue syndrome
- Low back pain
- Multiple sclerosis

Risk factors of chronic pain^[14]

Biological risk factors:

- Old age
- Genetics
- Race
- Obesity
- Previous injury

Psychological risk factors:

- Childhood trauma
- Mood disorders

Life style risk factors:

- Smoking
- Stress
- Inactivity
- Diet
- Avoiding the doctor
- Having a high-risk job

Pain management

Pain management, pain medicine, pain control or algia, is a branch of medicine that uses an interdisciplinary approach for easing the suffering and improving the quality of life of those living with chronic pain.^[15]

Pain can be managed through

1. Pharmacological interventions
2. Non pharmacological interventions

Pharmacological interventions^[16, 17]

Mild pain:

- Paracetamol or NSAIDs such as ibuprofen or aspirin can be prescribed.

□ NSAIDs have anti-inflammatory, analgesic and antipyretic effects.
 The anti-inflammatory action relieves pain by interfering with cyclooxygenase.

Mild to moderate pain:

Paracetamol or NSAIDs and weak opioid such as hydrocodone may provide greater relief than their separate use.

Moderate to severe pain:

- When treating moderate to severe pain, the type of pain, acute or chronic need to be considered.
- Depends on the type of pain different medicines can be prescribed.
- Certain medications may work better for acute pain, other for chronic pain and some may work equally on both.
- For many individuals, use of non-pharmacological methods enhances pain reliefs.
- These non-pharmacological strategies are often used combination with medication.

Non-pharmacological therapies include: [16, 17]

- Heat and cold application
- Medication
- Distraction
- Imaginary
- TENS application (Transcutaneous electrical nerve stimulation)
- Yoga
- Massage
- Acupuncture
- Music therapy
- Herbal therapy: Garlic, Echinacea, Ginseng

Pain scale [18]

A pain scale measures a patient's pain intensity or other features. Pain scales are necessary to assist with better assessment of pain and patients screening. Pain measurements help to determine the severity, type, and duration of the pain, and are used to make an accurate diagnosis, determine a treatment plan, and evaluate the effectiveness of treatment. Accurately measuring pain is a necessity in medical settings, especially if the pain measurement is going to be used as a screening tool, either for potential diseases or medical problems, or as a type of triage to determine urgency of one patient over another. Different pain scales are used to make an accurate diagnosis, determine a treatment plan, and evaluate the effectiveness of treatment.

Scales:

Numeric rating scale [19]

The Numeric Rating Scale (NRS-11) is an 11-point scale for patient self-reporting of pain. It is based solely on the ability to perform activities of daily living (ADLs) and can be used for adults and children 10 years old or older.

Pain interferes with a person's ability to perform ADLs. Pain also interferes with a person's ability to concentrate, and to think. A sufficiently strong pain can be disabling on a person's concentration and coherent thought, even though it is not strong enough to prevent that person's performance of ADLs. However, there is no system available for measuring concentration and thought.

Rating	Pain Level
0	No Pain
1-3	Mild Pain (nagging, annoying, interfering little with ADLs)
4-6	Moderate Pain (interferes significantly with ADLs)
7-10	Severe Pain (disabling; unable to perform ADLs)

Fig: Numeric rating scale

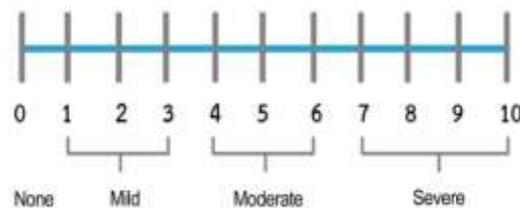


Fig: Numeric rating scale

Visual analogue scale [20]

The **visual analogue scale** or **visual analog scale (VAS)** is a psychometric response scale which can be used in questionnaires. VAS is a measurement instrument that tries to measure a characteristic or attitude that is believed to range across a continuum of values and cannot easily be directly measured.

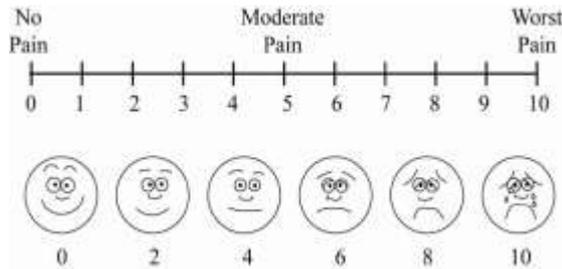


Fig: Visual analogue scale

Categorical scale [21]

Category scales use words as the primary communication tool and may also incorporate numbers, colors, or relative location to communicate pain. The Wong-Baker FACES Pain Scale combines pictures and numbers for pain ratings.



Fig: Category scale

McGill pain questionnaire [22]

The **McGill Pain Questionnaire**, also known as **McGill Pain Index**, is a scale of rating pain developed at McGill University by Melzack and Torgerson in 1971. It is a self-report questionnaire that allows individuals to give their doctor a good description of the quality and intensity of pain that they are experiencing. The users are presented with a list of 78 words in 20 sections that are related to pain.

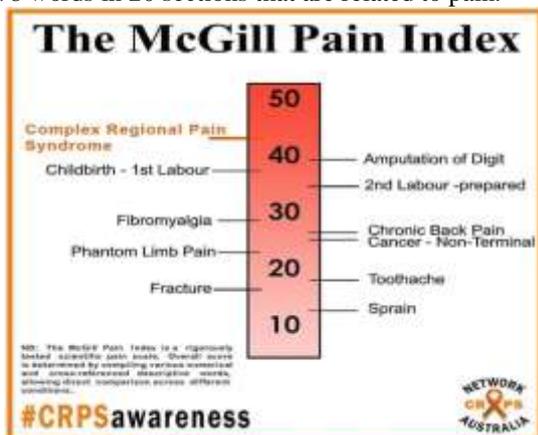


Fig: The McGillPain Index

Management of pain in chronic diseases:

Shingles:

A reaction of chickenpox virus (varicella zoster virus) within the body inflicting a painful rash. Anyone who had chickenpox may develop shingles. It isn't familiar what reactivates virus. Shingles cause a painful rash which will seem as a stripe of blisters on the torso. Pain will persist even once the rash is gone. [23]

Besides rashes, blisters, and scabbing, shingles patient suffer intense pain. This occurs in a part of the body along a nerve pattern, referred to as the dermatome, wherever the virus resides usually across the trunk. Unfortunately, some patients prolong to develop a chronic condition called post-herpetic neuralgia, with symptoms including deep or burning pain, extreme sensitivity to the touch and numbness in the affected area, which may last for years if not addressed promptly. Early treatment for shingles can facilitate stop the transition from acute to chronic pain. [24]

Symptoms [25]

- Burning, tingling, or numbness of the skin.
- Feeling sick-chills, fever, upset stomach, or headache.
- Fluid-filled blisters.
- Skin that's sensitive to touch.
- Mild skin sensation to robust pain.

Pain score

Most patients can say the pain ranges from 6-10. Between one and five days once the primary symptom occur, a rash will develop within the affected area. [26]

Pain management:

People with gentle to moderate pain are often treated with over-the-counter pain medications like paracetamol, NSAIDs, or opioids. Topical lotions containing calamine can be used on the rash or blisters and should be soothing. Occasionally, severe pain may need opioid medications, such as morphine, codeine. Once the lesions have encrusted over, capsaicin cream (Zostrix®) can be used. Numbing agents such as lidocaine and nerve block may also reduce pain. Administering gabapentin in conjunction with antivirals may provide relief of post-herpetic neuralgia. An injection including corticosteroids and local anesthetics are also used to reduce pain. [27]

Alternative therapies [28]

- **Acupuncture:** Clinical trials indicate that acupuncture could reduce pain and discomfort among patients with post-herpetic neuralgia.

- Essential oils:** Camomile oil, Eucalyptus oil, tea tree oil - my help with skin irritation and healing
- Cold compresses:** Holding cool cloths or compresses against the rash site could assist in relieving cutaneous sensation and reducing swelling.
- Witch hazel:** More practical in reducing inflammation and itching.
- Cool baths:** Relieve sore and itchy spots and helps to stop scratching.
- Oat bath:** To alleviate pain and itchiness.
- Gentianascabra:** Decrease the probability of post-herpetic neuralgia.
- Reduce stress**
- Quit smoking:** To boost immune system.

Kidney stones

Kidney stone disease also known as nephrolithiasis or urolithiasis is when a solid piece of material (kidney stone) stuck within the urinary tract. Trying to pass a kidney stone stuck in the urinary tract will bring people to their knees and straight to the emergency room. Sometimes made from calcium, these hard pellets block the flow of urine, making the kidney swell and causing waves of sharp pain at the mid-back, abdomen or sides and for men, pain at the ends of their penis. [29]

Symptoms [30]

- Pain in the back, belly, or side (renal colic)
- Pain or burning throughout urination
- Fever and chills
- Cloudy or foul-smelling urine
- Blood within the urine
- Urgency ought to go
- Nausea and vomiting

Pain score [31]

Most of the people rated their worst pain as being terribly just like that of childbirths, with a median pain score of 7.9 out of 10.

Pain management

Passing a little stone can cause some discomfort. Drugs such as ibuprofen (Advil[®], Motrin IB[®], others), acetaminophen, or naproxen will be used for mild pain. Alpha blockers (ex; Flomax[®]) may be prescribed that relaxes the muscles in the ureter and help pass stones faster and with less pain. [32, 33]

According to this study, rectal indomethacin, intramuscular tramadol and intranasal desmopressin are effective and safe routes

of controlling pain in acute renal colic secondary to urolithiasis. Tramadol was the foremost effective agent in controlling pain. [33, 34]

Severe pain requiring an emergency room visit, will be managed with IV narcotics (ex: Morphine or Fentanyl), IV anti-inflammatory drugs (ex: ketorolac), and IV drugs to manage nausea/vomiting. If the pain becomes too severe, or if they're too large to pass, they'll be surgically removed. [34]

Procedures: There are 3 types of minimally invasive surgery- [35]

- **Ureteroscopy:** Ureter scope is inserted in the urethra, through the bladder, and into the ureter. This instrument permits stones to be seen then retrieved in an exceedingly surgical "basket" or broken apart using a laser. These smaller pieces of kidney stones are then more easily able to exit the body through the urinary tract.
- **Shockwave lithotripsy:** In this procedure, the patient is placed on a special sort of surgical table or tub. High-energy shock waves are sent through water to the stone(s) location. The shock waves break apart the stones, that are then more easily able to exit the body through the urinary tract.
- **Percutaneous nephrolithotomy:** During this procedure, a tube is inserted directly into the kidney through a little incision created in your back. Stones are then disintegrated by an ultrasound probe and suctioned out so that you do not have to pass any fragments. A urethral stent is placed once the procedure (an internal tube from the kidney to the bladder that is removed one week after surgery in the office). Patients are generally kept overnight for observation and discharged home in the morning.

Others:

Open stone surgery: Open stone surgery, is rarely performed. It is presently solely worn out 0.3% to 0.7% of cases.

All these procedures facilitate to get rid of the stones from the body which then reduces the pain.

Alternate therapies [36]

1. **Stay hydrated:** Hydration is that the key to relieving pain in the kidneys since water can facilitate help flush bacteria out of the body.
2. **Cranberry juice:** Remedy for tract infections.
3. **Probiotics:** Probiotics helps to fight against bacteria and kidney pain.

4. **Warm Epsom salt:** Helps to alleviate intense kidney pain.
5. **Heat therapy:** Heating pad on the affected space for around 20 min at a time for successful pain reduction.
6. **Non-aspirin pain killers:** If someone experiencing fever with kidney discomfort then tylenol is most popular to relieve pain that probably break the fever.

Child birth:

Childbirth, additionally referred to as labor and delivery, is that the ending of gestation wherever one or a lot of babies leave the uterus by passing through vagina or by caesarean section.

For some women, intense pain within the lower back is an persistent facet of childbirth. Usually referred to as back labor the pain peaks throughout contractions and lingers in between, making it harder for girls to push. It's typically caused by the baby's head position, with the back of the head pressing into the mother's tailbone, however that's not continually the case.^[37]

Symptoms^[38]

- Pain can be felt as strong cramping in the abdomen, groin, and back, as well as an achy feeling.
- Pain in their sides or thighs as well

Signs of labor:

- Baby drops
- Cervix dilates
- Cramps and exaggerated pain
- Loose-feeling joints
- Diarrhea
- Weight gain stops
- Fatigue and "nesting instinct"
- Vaginal discharge.

Pain score: It reaches approx. 40 out of 50 on the McGill pain scale.

Pain management

There are two types of medicines that can ease pain throughout labor:^[39]

- **Analgesics** cut back pain, however you'll still feel things.
- **Anesthetics** give numbness. They will block pain and alternative feelings.

Three main medical pain-relieving choices for labor include:^[40]

- Nitrous oxide
- Pethidine
- Epidural anesthesia

Some analgesics work on whole body. Others can reduce pain in smaller areas, like vagina, vulva, and perineum.

Other analgesics or anesthetics cut back or block pain in larger areas of your body. During labor, these medications will reduce or numb pain below your waist. They include epidural block, spinal block, and combined spinal-epidural (CSE) block.

Epidural block:^[41, 42]

Often simply referred to as "epidural," this is the foremost common reasonably pain relief medication used during childbirth within the U.S. It can be given during a vaginal birth or a **cesarean section** (C-section). The doctor injects the medicine into lower back. It takes regarding 10 to 20 minutes to work.

Epidurals sometimes relieve pain throughout labor while letting the person keep alert. It lower the mother blood pressure, which might slowly lower baby's heart rate, though that's not likely. Also, it can also affect ability to pee, so catheter is inserted.. Other side effects include:

- Fever
- Itching
- (Rarely) a bad headache in the times after giving birth.

Spinal block:^[41, 42]

Doctors can use a spinal block before a delivery (it is used more rarely in a vaginal birth). It's a shot get with in the lower back. It usually starts to work within a few minutes and lasts 1 to 2 hours. The side effects are an equivalent as those for an epidural.

Combined spinal-epidural (CSE):^[41]

A CSE combines the advantages of an epidural and spinal block to ease pain quickly and for some time. Same level of pain relief may be obtained from a CSE (similar to epidural), but with a lower dose of medication. It's typically referred to as a "walking epidural" because the person may still be able to walk a short distance after giving the shot. The risks are an equivalent as for an epidural.

Tranquilizers:^[41]

Tranquilizers aren't used completely but facilitate to reduce anxiety. It takes about 10-20 min to figure and provides relaxation and forgetting about labor. They don't get completely get eliminate pain.

Narcotics (opioids): ^[41]

They usually work within a few minutes and last for 2 to 6 hours. They don't completely eliminate pain, and they may cause you to feel sleepy. They will additionally have an effect on each mother and baby's breathing. These medications is also given to women who don't wish an epidural but do want something for pain relief throughout labor.

Pudanal block: ^[43]

This is an injection that may block pain between your vagina and anus (perineum). It takes about 10 to 20 minutes to work, and it seldom has any negative effects. However it's going to not work for a few people, and it can cause an allergic reaction or perhaps an infection. It can also decrease your blood pressure. This methodology is employed less often nowadays.

Alternate or complimentary therapies

The Complementary Therapies for labor and Birth (CTLB) protocol introduces idea of birth as a natural physiological method, and the idea of working with pain using evidence-based complimentary medicine tools by that the birth process may be managed.

The tools used were:

1. **Visualization** ^[44] - four guided visualizations rehearsed through the courses and given to participants on a CD to practice at home;
2. **Yoga posture** ^[45] - five postures and movements practiced to encourage relaxation, physiological position for labor, opening of the pelvis and downward descent of the baby;
3. **Breathing techniques** ^[46] - four respiratory techniques were introduced: soft sleep breaths for relaxation between contractions; blissful belly breaths (BBs) which were used during contractions for pain relief; Cleansing Calming Breaths used following contractions during the transition amount of labor; and the gentle birthing breath (GB) which was for use during the second stage of labor and encouraged descent of the baby avoiding active pushing and protection of the pelvic floor.
4. **Massage** ^[47] - two techniques were shown to partners: the endorphin massage used between contractions, which is a soft technique and encourages endorphin release; and the stronger massage which is used during contractions for pain relief and focuses on squeezing the buttock, especially the piriformis muscle, to interrupt pain perception;

5. **Acupressure** ^[48] - would possibly increase blood flow to the uterus, influence hormonal responses, and stimulate uterine contractions, so it should used only with doctors approval;
6. **Facilitated partner support** ^[49] - uses the concept of working with pain and instructs partners to advocate for the labouring woman, promoting her oxytocin levels and minimizing her stress with actions and techniques that are subsidiary for the birth woman, and provides time for facilitated discussion and rehearsal by couples during the course.

Complex regional pain syndrome (CRPS)

Also referred to as **reflex sympathetic dystrophy (RSD)**, describes a variety of painful conditions characterized by continuity (spontaneous and/or evoked) the pain in the region that is apparently disproportionate in time or degree to the usual course of any known trauma or other injury. Usually, starting in a limb, it manifests itself as extreme pain, swelling, limited range of motion, and changes in the skin and bones. It may initially affect a limb and then spread throughout the body; 35% of those affected report symptoms throughout their body. There are two subtypes (Type I & Type II) exist. Having both types is possible. ^[50]

- CRPS is ranked among the most painful of all medical problems and has been nicknamed **suicide disease** because there is no limited effective cure and treatment. ^[51]

Symptoms: ^[52]

Pain areas: In nerves, arms or legs, back, foot, or hands.

Pain types: Can be chronic

Muscular: Rhythmic muscle contractions, muscle loss, or muscle spasms.

Sensory: Pins and needles, pain sensitivity, or uncomfortable tingling and burning.

Whole body: Nervous system dysfunction or sweating.

Also common: Depression, headache, redness, stiffness, swelling, or tenderness.

Pain score ^[53]

CRPS is described as the most painful condition of chronic pain known. It reaches approx. 42 out of 50 on the McGill pain scale higher than the amputation of a finger without anesthesia.

Pain management ^[54, 55, 56]

- **Pain relievers.** Over-the-counter (OTC) pain relievers — such as aspirin, ibuprofen (Advil, Motrin IB, others) and naproxen sodium

(Aleve) — can relieve mild pain and inflammation.

Your doctor may prescribe stronger analgesics if OTC ones aren't helpful. Opioid drugs can be an option. Taken in appropriate doses, they could help control pain.

- **Antidepressants and anticonvulsants.** Sometimes antidepressants, such as amitriptyline, and anticonvulsants, such as gabapentin (Neurontin), are used to treat pain that results from a damaged nerve (neuropathic pain).
- **Corticosteroids.** Steroid drugs, such as prednisone, can reduce inflammation and improve mobility in limb.
- **Bone-loss medications.** Your doctor may suggest medications to prevent or stall bone loss, such as alendronate (Fosamax) and calcitonin (Miacalcin).
- **Sympathetic nerve-blocking medication.** Injection of an anesthetic to block pain fibers in the affected nerves may relieve pain in some people.
- **Intravenous ketamine** ^[57] Ketamine, a dissociative anesthetic, seems promising as a treatment for CRPS. It can be used at low doses if other treatments have not occurred.

Surgeries:

Sympathectomy ^[58] - Surgical, chemical, or radiofrequency sympathectomy -disruption of the affected part of the sympathetic nervous system can be used as a last resort in patients with impending tissue loss, edema, recurrent infection, or ischemic necrosis.

Surgical sympathectomy ^[58] - This destroys some of the nerves that carry pain signals. Use is controversial; some experts believe it is unwarranted and makes CRPS worse, while others report occasional favorable results. Sympathectomy should be used only in individuals whose pain is temporarily dramatically relieved by sympathetic nerve blocks.

Spinal cord stimulation ^[59] - Spinal cord stimulator appears to be an effective therapy in the management of patients with CRPS type I (level A evidence) and type II (level D evidence). Although they improve pain and quality of life, the evidence is unclear about the effects on mental health and overall functioning. The stimulating electrodes are threaded through a needle into the spine outside the spinal cord. They cause tingling sensations in the painful area that helps block pain sensations and normalize signaling into the spinal cord and brain.

Electrodes can be placed temporarily for a few days to assess whether stimulation is likely to be useful. Minor surgery is required to implant the stimulator, battery, and electrodes under the skin on the torso. Once implanted, stimulators can be turned on and off and adjusted with an external controller.

Spinal-fluid drug pumps ^[58] - These implanted devices provide medications that encourage pain directly in the fluid that bathes the nerve roots and spinal cord. Normally, these are mixtures of opioids, local anesthetic agents, clonidine, and baclofen. The advantage is that very low doses may be used that do not extend beyond the spinal canal to affect other body system. This decreases side effects and increases drug effectiveness.

Sympathetic nerve block ^[58, 59] - Previously, sympathetic blocks-in which an anesthetic is injected next to the spine to directly block the activity of the sympathetic nerves and improve blood flow. The most recent studies show no long-term benefit after the injected anesthetic worn out and there is a risk of injury due to needle injections, so this approach has fallen from favor.

Amputation ^[60] - No randomized study in medical literature has studied the response with amputation of patients who have failed the above-mentioned therapies and who continue to be miserable. Nonetheless, on average, about half of the patients will have resolution of their pain, while half will develop phantom limb pain and/or pain at the amputation site. As in any other chronic pain syndrome, the brain likely becomes chronically stimulated with pain, and late amputation may not work as well as it might be expected. In a survey of 15 patients with CRPS type 1, 11 responded that their lives were better after amputation. Since this is the ultimate treatment of a painful extremity, it should be left as a last resort.

Alternate Therapies ^[61, 62, 63, 64]

- **Heat therapy.** Applying heat may offer relief of swelling and discomfort on skin that feels cool.
- **Topical analgesics.** Various topical treatments are available that may reduce hypersensitivity, such as over-the-counter capsaicin cream, or lidocaine cream or patches (Lidoderm, LMX 4, LMX 5).
- **Physical or occupational therapy.** Gentle, guided exercising of the affected limbs or modifying daily activities might help decrease pain and improve range of motion and strength. The earlier the disease is diagnosed, the more effective exercises might be.

- **Mirror therapy.** This type of therapy uses a mirror to help trick the brain. Sitting before a mirror or mirror box, you move the healthy limb so that the brain perceives it as the limb that is affected by CRPS. Research shows that this type of therapy might help improve function and reduce pain for those with CRPS.
- **Transcutaneous electrical nerve stimulation (TENS).** Chronic pain is sometimes eased by applying electrical impulses to nerve endings.
- **Biofeedback.** In some cases, learning biofeedback techniques may help. In biofeedback, you learn to become more aware of your body so that you can relax your body and relieve pain.
- **Spinal cord stimulation.** Your doctor inserts tiny electrodes along your spinal cord. A small electrical current delivered to the spinal cord results in pain relief.
- **Intrathecal drug pumps.** In this therapy, medications that relieve pain are pumped into the spinal cord fluid.
- **Acupuncture.** The insertion of long, thin needles may help stimulate nerves, muscles and connective tissue to increase blood flow and relieve pain.

It's possible for CRPS to recur, sometimes due to a trigger such as exposure to cold or intense emotional stress. Recurrences may be treated with small doses of an antidepressant or other medication.

Fibromyalgia:

It is also known as **fibrositis**. Fibromyalgia (FM) is a medical condition characterized by widespread chronic pain and a response to increased pain to pressure.^[65] It is a disorder characterized by widespread musculoskeletal pain accompanied by fatigue, sleep, memory and mood issues. Researchers believe that fibromyalgia amplifies painful sensations by affecting the way your brain and spinal cord process are painful and the cause of fibromyalgia is unknown; However, it is believed to involve a combination of genetic and ecological factors.^[66, 67]

Symptoms^[68, 69]

- Pain areas:** In the muscles, abdomen, back, or neck
- Pain types:** may be chronic, diffuse, sharp, or severe
- Pain circumstances:** can occur at night

- Whole body:** fatigue, feeling tired, or malaise
- Muscular:** muscle tenderness, delayed onset muscle soreness, or muscle spasms
- Gastrointestinal:** constipation, nausea, or passing excessive amount of gas.
- Mood;** anxiety, mood swings, or nervousness
- Cognitive:** forgetfulness or lack of concentration
- Hand:** sensation of coldness or tingling
- Sensory:** pins and needles or sensitivity to pain
- Sleep:** difficulty falling asleep or sleep disturbances.
- Common symptoms:** depression, flare, headache, irritability, joint stiffness, painful menstruation, sensitivity to cold, or tingling feet.

Pain score^[70]

You have a common pain index score of seven or more and a severity scale of symptoms (SS) score of five or more. Or you have a WPI rating of three to six and an SS score of nine or higher.

Pain management:

There is no universally accepted treatment or cure for fibromyalgia, and treatment typically consists of symptom management.

Medications:

Health Canada and the United States Food and Drug Administration (FDA) have approved pregabalin^[71] and duloxetine for the management of fibromyalgia. The FDA also approved milnacipran, but the European Medicines Agency refused marketing authority.^[72]

Antidepressants:

Antidepressants are "associated with improvements in pain, depression, fatigue, sleep disorders and quality of life of people with FMS." Antidepressants used to treat fibromyalgia include: tricyclic antidepressants, such as amitriptyline. Serotonin-noradrenalin reuptake inhibitors (SNRIs), such as duloxetine and venlafaxine. Selective serotonin reuptake inhibitors (SSRIs), such as fluoxetine (Prozac) and paroxetine.^[73] Tentative evidence suggests that monoamine oxidase inhibitors (MAOIs) such as pirlindole and moclobemide are moderately effective for reducing pain. Very low-quality evidence suggests pirlindole as more effective at treating pain than moclobemide. Side effects of MAOIs may include nausea and vomiting.^[74]

Anti-seizure medication

The anti-convulsant medications gabapentin and pregabalin may be used to reduce pain.^[75] Gabapentin may be of benefit for pain in about 18% of people with fibromyalgia. Pregabalin demonstrates a benefit in about 9% of people.^[76]

Opioids:

The use of opioids is controversial. As of 2015, no opioid is approved for use in this condition by the FDA.^[77] The National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) in 2014 stated that there was a lack of evidence for opioids for most people. The European League against Rheumatism in 2008 recommends tramadol and other weak opioids can be used for pain but not strong opioids. A 2018 review found little evidence to support the combination of paracetamol (acetaminophen) and tramadol over a single medication.^[78]

There is no evidence that pure opioids, such as morphine or oxycodone, have any benefit in fibromyalgia. Patients often use short-acting opioids, such as codeine. The euphoric effect of the drug makes abuse a potential.

Others:

- The muscle relaxants cyclo benzaprine, carisoprodol with acetaminophen and caffeine, and tizanidine are sometimes used to treat fibromyalgia; however, as of 2015 they are not approved for this use in the United States. The use of NSAIDs is not recommended as first line therapy. Moreover, NSAIDs cannot be considered as useful in the management of fibromyalgia.^[79]
- Dopamine agonists (e.g. pramipexole and ropinirole) resulted in some improvement in a minority of people, but side effects, including the onset of impulse control disorders like compulsive gambling and shopping, might be a concern for some people.^[80]
- There is some evidence that 5HT₃ antagonists may be beneficial. Preliminary clinical data finds
- That low-dose naltrexone (LDN) may provide symptomatic improvement.
- Very low-quality evidence suggests quetiapine may be effective in fibromyalgia.

- No high-quality evidence exists that suggests synthetic THC (nabilone) helps with fibromyalgia.
- Intravenous Iloprost may be effective in reducing frequency and severity of attacks for people with fibromyalgia secondary to scleroderma.^[81]

Alternative therapies^[82, 83]

1. **Yoga:** Fibromyalgia related pain at lower levels among participants.
2. **Meditation:** relieve fibromyalgia related pain.
3. **5-HTP (5-Hydroxy tryptophan):** This chemical helps regulate your mood. It may relieve pain, morning stiffness, fatigue, and anxiety.
4. **SAMe:** S-Adenosyl methionine helps to relieve pain, morning stiffness, and fatigue.
5. **Acupuncture:** Very thin needles are inserted into skin at different points of body which reduces pain.
6. **Tai chi:** It is an ancient Chinese practice. It involves moving your body slowly and gently through a series of poses. It has some potential for easing fibromyalgia symptoms.

Manual lymph drainage therapy (MLDT): It is a type of massage. It helps move lymph fluid through your body. Your lymph system helps rid your body of waste and toxins.

II. CONCLUSION:

Careful selection of an effective analgesic diet should be based on the type and amount of pain the patient must suffer. Clinicians must develop several safe and effective pain patterns based on estimating the intensity of the expected pain. Improved management of chronic pain in complex patients could lead to significant improvements in health, functioning and quality of life and could also improve the management of their other major chronic health conditions.

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