

Pain: What Do Doctors Need to Know?

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Abstract

Pain is one of the leading causes of medical consultations and emergency department visits, making its accurate assessment and management essential components of quality healthcare. Pain can be classified according to duration, intensity, and pathophysiology, including nociceptive, neuropathic, nociplastic, and mixed mechanisms. Chronic pain represents a major public health challenge because of its high prevalence and its impact on physical and psychological functioning. A comprehensive evaluation based on medical history, physical examination, and appropriate use of complementary studies is crucial for establishing an accurate diagnosis and guiding treatment. Mechanical and inflammatory pain patterns, comorbidities, mood disorders, and functional impairment should be considered during assessment. Multimodal pain management addresses the multifactorial nature of pain through pharmacological and non-pharmacological strategies. Pharmacological options include non-opioid analgesics, opioids, nonsteroidal anti-inflammatory drugs, nutraceuticals, muscle relaxants, antidepressants, anticonvulsants, and topical agents, with treatment tailored to the underlying pain mechanism and individual patient characteristics. Opioids should be used cautiously, particularly in chronic pain, with clearly defined functional goals. Non-pharmacological interventions, including physical rehabilitation, exercise, postural education, pain neuroscience education, and mind-body approaches, are fundamental for restoring function and improving quality of life. Effective pain management prioritizes functional recovery and reduction of suffering rather than complete pain elimination, emphasizing individualized, mechanism-based, and multidisciplinary approaches.

Keywords: Musculoskeletal pain, chronic pain, mixed pain, neuropathic pain, pain management.

Introduction

The quality of medical care is intrinsically linked to the ability to recognize and effectively manage both acute and chronic pain [1].

Pain Classification by Duration

Acute pain

It emerges recently as a physiological alert response. It is associated with a specific injury, such as trauma or surgery, lasting up to 6 weeks and resolving with the underlying cause. Initial treatment focuses on efficient pain relief, with frequent monitoring and reassessments to prevent chronification [2,3,4].

Chronic pain

In the United Kingdom, the prevalence of chronic pain is 43.5%, and Brazilian data indicate that the average prevalence rate is 45.59%. Analgesic treatments are frequently considered ineffective. By definition, it is pain that persists beyond the expected healing time of the original injury; according to the International Association for the Study of Pain (IASP), it lasts more than six months. This constitutes a

significant public health problem due to its high prevalence and the associated physical and mental disability [2,3,4].

Pain Classification by Intensity

Documenting pain intensity is essential to understand patient needs and select appropriate therapy, while also tracking treatment progress. Pain is typically categorized as mild (1–3), moderate (4–6), or severe (7–10), with the verbal numerical scale (VNS) being the most practical for daily clinical use [2,3].

Pain Classification by Pathophysiology

Nociceptive pain: Results from nociceptor activation in a normal somatosensory system, manifesting as sensations of weight, stabbing, tightness, throbbing, or burning [2,3].

Neuropathic pain: Is based on a clinical history of injury or disease in the somatosensory structures, with symptoms that include burning, electric shocks, tingling, numbness, and pins-and-needles sensations. Questionnaires such as the DN4, LANSS, and pain DETECT are used for diagnostic screening [2,3].

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Table 1: First-line medications for adult neuropathic pain [7]

Medication	Initial dose	Dosage, how to prescribe	Therapeutic dose
Antidepressants			
Amitriptyline, Imipramine, Nortriptyline	10–25 mg	Once a day, 3 h before bedtime	25–150 mg/day
Duloxetine	30 mg	Once a day, in the morning	60–120 mg/day
Venlafaxine	37.5–75 mg	Once a day, in the morning	150–225 mg/day
Anticonvulsants			
Gabapentin	300 mg	8/8 h	1200–3600 mg/day
Pregabalin	25–75 mg	12/12 h	150–600 mg/day
Topical medications			
Lidocaine 5% patch	1–3 patches	12 h with/12 h without the plaster	1–3 patches

Nociplastic pain: arises from altered nociception without fitting nociceptive or neuropathic categories, exemplified by fibromyalgia with diffuse pain, sleep disturbances, chronic fatigue, and cognitive/somatic symptoms [2,3].

Mixed pain: combines different pain types in the same region simultaneously, potentially with predominance of one [2,3].

Pain Assessment

Medical history gathers data for diagnostic hypotheses, investigating the onset, periodicity, intensity, aggravating factors, location, and descriptors of the pain. Mechanical pain worsens with movement and improves with rest, while inflammatory pain worsens at rest or at the beginning of movement and improves with activity [5,6,7].

Personal history is crucial for diagnosis and management, covering current and past health conditions, disabilities, prior treatments, and medication contraindications. Mood disorders frequently associate with chronic pain syndromes due to prolonged suffering; distinguishing causality is challenging as pain overlaps with anxiety/depression symptoms, necessitating consideration of emotional influences on pain perception and tolerance [5,6,7].

Physical examination includes inspection, gait analysis, palpation of bony and soft-tissues, special maneuvers, active trigger point search, and neurological evaluation [5,6,7].

Complementary imaging exams are requested based on history and exam but require caution, as radiographic changes may not correlate with symptoms; clinical correlation is paramount [5,6,7].

Treatment

Multimodal pain therapy combines analgesic approaches for superior relief, addressing pain's multifactorial nature through agents acting at diverse sites to optimize control and minimize adverse effects [6,7,8].

Pharmacological Treatment

The WHO analgesic ladder proposes stepwise pain management. Step 1: Non-opioid (e.g., dipyrrone, paracetamol); Step 2: Weak opioid (e.g., codeine, tramadol); Step 3: Strong opioid (e.g., tapentadol, oxycodone, morphine, methadone, fentanyl, buprenorphine) [6,7].

Non-opioid analgesics: Dipyrrone suits acute and chronic pain up to 4 g/day every 4–6 h; regional agranulocytosis risk varies, low in Latin America per multicenter study. Paracetamol, widely used, max 3 g/day

(750 mg every 6 h); overdose causes acute liver failure, caution in hepatopathy [6,7,8,9,10].

Opioids: Indicated for the relief of moderate to severe acute pain, but require caution in chronic cases, according to the IASP; medium-term use at low doses is possible in selected patients, with a risk of tolerance and dependence. Integrate them into multimodal plans at the lowest effective dose, with clear functional goals; pain reduction $\geq 30\%$ defines significant improvement [11,12].

Nonsteroidal anti-inflammatory drugs (NSAIDs): Steroidal (glucocorticoids inhibit phospholipase A2) effective short-term but risk infection, delayed healing, and gastrointestinal (GI) issues. NSAIDs: Non-selective (ketoprofen, diclofenac) inhibit COX-1/2; COX-2 selective (celecoxib, etoricoxib) lower GI risk – minimize dose/duration, consider proton pump inhibitors [6].

Nutraceuticals: (e.g., arnica, avocado/soy unsaponifiables, boswellia, collagen, curcumin, methylsulfonylmethane, palmitoylethanolamide) are indicated for inflammatory pain, offering safer alternatives, especially for elderly patients or those with contraindications, presenting promising, albeit limited, evidence and few adverse effects [6-16].

Muscle relaxants: Antispasmodics (cyclobenzaprine) suit musculoskeletal pain; antispastics (baclofen) for spasticity [6,7].

Antidepressants: Tricyclics (amitriptyline, imipramine, nortriptyline) excel in neuropathic pain (best result for neuropathic pain, based on the number needed to treat (NNT)), and also improve sleep. Duals (duloxetine, venlafaxine) are first-line for neuropathic pain, low back pain, osteoarthritis, and fibromyalgia. They are considered an interesting option in the treatment of chronic pain associated with mood disorders; however, there is evidence that pain improves independently of the mood disorder [7,17].

Anticonvulsants (gabapentin or pregabalin): First-line for neuropathic pain, recommended by the Food and Drug Administration for the treatment of fibromyalgia. In addition to their analgesic effect, they can help improve sleep quality and reduce anxiety. Common initial side effects (dizziness, drowsiness) usually decrease over time; to avoid them, dose titration should be done gradually [6,18,19].

Lidocaine 5% patch: For localized neuropathic pain, smaller than an A4 sheet of paper. Minimum usage time to evaluate results is 3–4 weeks [7].

Non-pharmacological Treatment

Chronic pain management aims to restore functionality, alleviate suffering, and enable daily tasks despite musculoskeletal limitations. Analgesic/interventional therapies facilitate physical activity/rehabilitation, incorporating physical medicine, kinesiotherapy, postural education, trigger/perpetuating factor removal, pain education, and mind-body strategies [2].

Conclusion

Effective pain management is critical, as pain drives most medical consultations and emergency visits. Precise clinical assessment and accurate diagnosis underpin tailored treatment success, prioritizing rehabilitation and quality of life over complete pain eradication

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