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EDITORIAL

Nociplastic Pain: Beyond the Pain Generator – Rethinking Diagnosis and Redefining Successful Pain Management

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ABSTRACT

Nociplastic pain is increasingly recognised as an important mechanism underlying chronic pain that cannot be adequately explained by ongoing tissue damage or a lesion of the somatosensory nervous system. Introduced by the International Association for the Study of Pain (IASP) as a third mechanistic descriptor alongside nociceptive and neuropathic pain, it represents altered nociceptive processing and pain modulation. Its recognition has important implications for the assessment and management of patients with persistent pain, particularly those whose symptoms appear disproportionate to structural findings or respond poorly to conventional interventions.

This editorial discusses the evolving understanding of nociplastic pain, its clinical features and the challenges associated with diagnosis. It highlights the importance of recognising pain hypersensitivity, widespread or regional pain, and associated symptoms such as fatigue, sleep disturbance and cognitive difficulties. Nociplastic mechanisms may coexist with nociceptive and neuropathic mechanisms, making individualised assessment essential. Management should move beyond a purely tissue-centred approach towards multimodal, person-centred care incorporating

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pain education, graded physical activity, psychological interventions, appropriate pharmacotherapy and attention to sleep and emotional wellbeing. Greater awareness, clinical education and research are needed to improve recognition and develop more precise treatment strategies.

Keywords: Nociplastic pain, chronic pain, central sensitization, pain mechanisms, pain assessment, multidisciplinary pain management

INTRODUCTION

The understanding of pain has evolved considerably beyond the traditional concept of pain as a direct indicator of tissue injury. Although nociceptive and neuropathic mechanisms explain many clinical presentations, a substantial proportion of people with chronic pain experience persistent symptoms that are not adequately accounted for by identifiable tissue damage or a lesion of the somatosensory nervous system. This clinical challenge has prompted a more comprehensive understanding of altered pain processing.

In 2017, the International Association for the Study of Pain (IASP) introduced *nociplastic pain* as the third mechanistic descriptor of pain, alongside nociceptive and neuropathic pain. It is defined as pain arising from altered nociception despite no clear evidence of actual or threatened tissue damage causing activation of peripheral nociceptors, or disease or lesion of the somatosensory system causing the pain.[1] This concept provides a useful framework for understanding complex chronic pain presentations and has important implications for clinical assessment, treatment selection and patient communication.

Understanding nociplastic pain

Nociplastic pain is not simply pain without an identifiable cause, nor is it synonymous with psychological pain. It reflects altered nociceptive processing and modulation within the nervous system. Increased responsiveness of central nociceptive pathways, commonly described as central sensitisation, is an important mechanism. However, nociplastic pain is a broader clinical concept and should not be used interchangeably with central sensitisation.[2]

Alterations in pain processing may involve increased excitability of spinal and supraspinal pathways, enhanced responses to sensory inputs, and changes in descending inhibitory and facilitatory mechanisms. These processes may contribute to hyperalgesia, allodynia and the spread of pain beyond the original site of symptoms. Interactions between the peripheral and central nervous systems, neuroimmune signalling, genetic influences and environmental factors are also being investigated.[3]

The experience of nociplastic pain is influenced by the interaction of biological, psychological and social factors. Sleep disturbance, emotional distress, previous pain experiences, stress and reduced physical activity may contribute to symptom persistence and disability. These factors should not be interpreted as evidence that pain is imagined or unreal. Rather, they form part of the complex processes that shape the individual's pain experience.

Recognising nociplastic pain in clinical practice

Clinical recognition remains challenging because there is currently no definitive

biomarker or routinely available investigation that confirms nociplastic pain. Diagnosis relies on careful clinical assessment, including history, pain distribution, examination findings, and associated symptoms.

The IASP clinical criteria and grading system for musculoskeletal nociplastic pain provide a structured approach.[4] Features supporting possible nociplastic pain include pain lasting more than three months, a regional, multifocal or widespread distribution, and symptoms that cannot be entirely explained by nociceptive or neuropathic mechanisms. Clinical evidence of hypersensitivity within the painful region, such as mechanical or thermal allodynia or after-sensations, is also required. A probable classification additionally considers a history of pain hypersensitivity and associated symptoms such as fatigue, unrefreshing sleep, cognitive difficulties or hypersensitivity to light, sound or odours. A definitive category has not been established because objective confirmatory tests are lacking.[1,4]

Clinicians should be alert to presentations in which pain intensity and disability appear disproportionate to structural findings, pain extends beyond the expected anatomical distribution, or repeated peripheral interventions provide limited or short-lived benefit. Associated symptoms, including poor sleep, fatigue, cognitive difficulties and sensory hypersensitivity, may provide further clinical clues.[2,5]

Importantly, nociplastic pain does not exclude the presence of nociceptive or neuropathic pain. Different mechanisms may coexist in the same patient and may contribute to varying degrees over time. For example, a patient with osteoarthritis may initially experience predominantly nociceptive pain but subsequently develop additional nociplastic features. Assessment should therefore identify the relative contribution of different mechanisms rather than force every presentation into a single category.[1]

Pragmatic clinical tools, including the Daradia Nociplastic Pain Checklist, have been proposed to support recognition in routine practice.[6] Such tools may assist clinical reasoning but should not replace a comprehensive assessment or be regarded as independently validated diagnostic tests.

Rethinking pain management

Recognition of nociplastic mechanisms requires a shift from a predominantly tissue-centred approach towards individualised, mechanism-informed and person-centred management. Repeated investigations and procedures directed at structural abnormalities may have limited benefit when altered pain processing is a major contributor. Interventions should be selected based on clinical findings, the patient's goals, and the likely mechanisms maintaining the pain.

A clear, empathetic explanation is an essential starting point. Patients need to understand that their pain is real, that persistent pain does not always indicate ongoing tissue damage, and that the nervous system's sensitivity can change. Appropriate pain education can reduce fear, misconceptions and unhelpful beliefs, while supporting active participation in rehabilitation.

Graded physical activity and exercise are central components of management. Activities should be introduced progressively, taking account of the individual's functional capacity, preferences and confidence. Pacing can help patients avoid cycles of excessive activity followed by symptom exacerbation and prolonged inactivity. Physiotherapy and rehabilitation should focus on improving

function, mobility and participation rather than simply reducing pain intensity.[2,5]

Psychological interventions, including cognitive behavioural therapy and acceptance, may help patients develop strategies to manage distress, fear of movement, unhelpful thought patterns and the impact of persistent pain. Sleep disturbance, anxiety, depression and other relevant comorbidities should be identified and addressed. These interventions are not intended to imply that pain is psychological; they recognise the multidimensional nature of chronic pain.

Pharmacological treatment should be individualised and used as part of a broader management plan. Depending on the clinical presentation, selected antidepressants, including serotonin–noradrenaline reuptake inhibitors and tricyclic antidepressants, or gabapentinoids may be considered. Benefits, adverse effects and treatment goals should be reviewed regularly. Strong opioids are generally not recommended for nociplastic-dominant pain because of limited evidence of sustained benefit and the potential for harm.[2,5]

The involvement of a multidisciplinary team is particularly valuable for patients with complex or persistent symptoms. Collaboration between medical practitioners, pain specialists, physiotherapists, psychologists, occupational therapists and other relevant professionals can support a coordinated approach. Treatment outcomes should include functional improvement, quality of life, sleep, participation in daily activities and achievement of personally meaningful goals, rather than relying exclusively on pain scores.

The way forward

Despite progress in understanding nociplastic pain, important knowledge gaps remain. the mechanisms underlying individual presentations are complex, and current clinical criteria are principally developed for musculoskeletal pain. Their applicability to other pain conditions requires further evaluation.[1,4] Research into biomarkers, clinical phenotyping, and interactions between neural, immune, and psychosocial processes may eventually support more precise diagnosis and treatment.[3]

For countries such as Sri Lanka, strengthening education in pain mechanisms is particularly important. Greater awareness among undergraduate and postgraduate trainees, medical officers and clinicians across specialties could improve early recognition and reduce unnecessary investigations and interventions. Multidisciplinary pain services, locally relevant research and accessible rehabilitation and psychological support are also essential to improving care.

CONCLUSION

Nociplastic pain represents an important development in the understanding of chronic pain and challenges the assumption that pain severity always reflects the extent of tissue damage. Recognising altered nociceptive processing allows clinicians to move beyond a narrow focus on the pain generator and adopt a more comprehensive, individualised approach. Improved clinical awareness, multidisciplinary care and continued research are essential to translating this evolving concept into better outcomes for people living with persistent pain.

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DECLARATION OF GENERATIVE AI AND AI-ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

During the preparation of the manuscript, the author used ChatGPT to check/improve language. After using this tool/service, the author reviewed and edited the content as needed and takes full responsibility for the publication's content.

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