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Neuropathic pain in osteoarthritis: a review of pathophysiological mechanisms and implications for treatment

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Abstract

Objectives: Osteoarthritis (OA) is the leading cause of musculoskeletal pain and functional disability worldwide, affecting a growing number of individuals in the western society. Despite various conservative and interventional treatment approaches, the overall management of the condition is problematic, and pain-the major clinical problem of the disease-remains sub-optimally controlled. The objectives of this review are to present the pathophysiologic mechanisms underlying the complexity of pain in OA and to discuss the challenges for new treatment strategies aiming to translate experimental findings into daily clinical practice.

Methods: A narrative literature review of studies investigating the existence of a neuropathic component in OA pain was conducted. We searched PubMed, Embase and Scopus for English language publications. A hand-search of reference lists of relevant studies was also performed.

Results: Recent advances have shed additional light on the pathophysiology of osteoarthritic pain, highlighting the contribution of central pain pathways together with the sensitisation of peripheral joint receptors and changes of the nociceptive process induced by local joint inflammation and structural bone tissue changes. Thus, a neuropathic pain component may be predominant in individuals with minor joint changes but with high levels of pain refractory to analgesic treatment, providing an alternative explanation for osteoarthritic pain perception.

Conclusion: A growing amount of evidence suggests that the pain in OA has a neuropathic component in some patients. The deeper understanding of multiple mechanisms of OA pain has led to the use of centrally acting medicines that may have a benefit on alleviating osteoarthritic pain. The ineffective pain management and the increasing rates of disability associated with OA mandate for change in our treatment paradigm.

Keywords: Agents for neuropathic pain; Central pain perception; Centralised pain; Osteoarthritis; Synovitis.

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