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ROLE OF OPIOD ADDICTION ON THE MUSCULOSKELETAL SYSTEM AND OTHER TREATMENT MODALITIES

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ABSTRACT
Musculoskeletal pain is a challenging condition for both patients and physicians. Many adults have experienced one or more episodes of musculoskeletal pain at some time of their lives, regardless of age, gender, or economic status. It affects approximately 47% of the general population. Of those, about 39–45% have long-lasting problems that require medical consultation. Inadequately managed musculoskeletal pain can adversely affect quality of life and impose significant socioeconomic problems. This manuscript presents a comprehensive review of the management of chronic musculoskeletal pain. It briefly explores the background, classifications, patient assessments, and different tools for management according to the recently available evidence. Multimodal analgesia and multidisciplinary approaches are fundamental elements of effective management of musculoskeletal pain. Both pharmacological, non-pharmacological, as well as interventional pain therapy are important to enhance patient's recovery, well-being, and improve quality of life. Accordingly, recent guidelines recommend the implementation of preventative strategies and physical tools first to minimize the use of medications. In patients who have had an inadequate response to pharmacotherapy, the proper use of interventional pain therapy and the other alternative techniques are vital for safe and effective management of chronic pain patients.

Keywords: Alternative treatment, Assessment of musculoskeletal pain, Chronic musculoskeletal pain, Interventional pain techniques, Musculoskeletal pain, NSAID, Opioids, Pharmacotherapy

INTRODUCTION
Chronic musculoskeletal pain (in particular, low back pain) is the main contributor to disability worldwide [1]. According to the World Health Organization (WHO), 20–33% of the world's population has some form of chronic musculoskeletal pain, translating to 1.75 billion people globally [2]. Musculoskeletal pain is defined as acute or chronic pain that affects bones, muscles, ligaments, tendons, and even nerves, and the pain associated with musculoskeletal (MSK) disorders is a common medical and socioeconomic problem worldwide [3]. It comprises a number of different pain syndromes, which range from local pain to neuropathic pain [2]. Chronic MSK pain increases suffering in daily activities, drug consumption, and high frequency of sick leave and disability pensions, and results in significantly diminished quality of life. It also poses a major public health problem, creating substantial costs for healthcare systems and disability insurance [4].

Musculoskeletal pain is primarily somatic in nature, but the presence of musculoskeletal pain does not preclude the addition of other pain syndromes, including neuropathic and/or visceral pain syndromes. The most prevalent forms of musculoskeletal pain are chronic low back pain, neck pain, and the pain associated with osteoarthritis and rheumatoid arthritis, but musculoskeletal pain also includes sprained muscles, pain associated with fracture, shoulder pain, and others. Advancing age increases the risk of musculoskeletal pain, although it may occur at any age. Virtually everyone has some form of musculoskeletal pain over the course of a lifetime. Many people report persistent symptoms or recurrent clinical symptoms, which accentuates the physical, psychological, and socio-economic impact of MSK pain [2, 5].

Musculoskeletal pain is mainly treated by general or family practitioners, physiatrists, or orthopedic specialists, but clinicians in all fields may treat patients who present with some form of musculoskeletal pain. Comprehensive care of MSK pain occurs through a thorough initial evaluation, including assessment of both the medical and the probable bio-psychosocial factors contributing to a painful condition in order to develop a treatment plan. Therefore, a multidisciplinary and holistic approach to manage MSK pain by utilizing more than one treatment modality is appropriate, and can result in improved outcomes [6].

METHOD

An extensive computer search of the current literature in the PubMed, MEDLINE, and Embase databases was performed using the following keywords: "musculoskeletal pain", "pharmacotherapy of musculoskeletal pain", "alternative and physical therapy", or "interventional pain procedures for musculoskeletal pain". Articles that were relevant and presented information on the management of musculoskeletal pain were included. Manual screening of references was conducted, and additional references were added. The authors take complete responsibility for the integrity and accuracy of the data. In compliance with ethics guidelines, this article is based on previously conducted studies and does not contain any studies with human participants or animals performed by any of the authors.

RESULTS

The authors have summarized the common problems associated with musculoskeletal pain care as the following [7]:

- Overuse of imaging:

Around 69% of general practitioners refer patients for radiography at first presentation and 82% would refer for ultrasound evaluation. Between 25 and 42% of patients with LBP undergo imaging even though its routine use is discouraged. Findings demonstrate a poor relationship between imaging and symptoms, and making a recommendation for imaging in the absence of red flags is not recommended unless: (1) serious pathology is suspected, (2) there has been an unsatisfactory response to conservative care or unexplained progression of signs and symptoms, or (3) imaging is likely to change management [8].

- Overuse of opioids:

The efficacy of opioids for musculoskeletal pain management is questionable for both chronic and acute pain conditions. The early use of opioids has been associated with poorer outcomes in LBP [9]. Also, it is suggested that the use of opioids should be cautiously limited and restricted to a short duration for the treatment of LBP [10]. Although limiting the use of opioids is recommended, there is increasing use and an ‘epidemic’ of prescription opioid-related harms [11]. Data from the "American Society of Interventional Pain Physician" showed a continuous increase in illicit opioid abuse, and adverse consequences, including death [12].

More recent data indicate that prescription opioid mortality has been overestimated, and the US Department of Health has indicated that at least 60% of opioid overdose is due to illicit drugs. Of the illicit opioids including fentanyl and heroin, synthetic fentanyl has seen a significant rise of involvement in overdose deaths. Along with this, evidence also points to a polypharmacy overdose crisis; 50% of opioid-positive toxicology deaths include other illicit substances, with an average of

six found on toxicology reports on mortality. These data may indicate that the opioid overdose epidemic may be partially due to other confounding factors rather than purely prescription drugs [13].

- Overuse of surgery:

The rate of knee arthroscopy for knee osteoarthritis has increased in the general US population from 3 to 4% . The rates of shoulder subacromial decompression and rotator cuff repair have increased markedly, even though surgical outcomes are comparable with exercise-based rehabilitation or sham surgery .

- Failure to provide education:

Only about 20% of patients with LBP are given advice and education in a primary care setting . This alarmingly low percentage is reflected in the quality of care for the management of MSK pain. As with many medical issues, strong patient education of musculoskeletal disorders and pain syndromes are important in improving care .

Musculoskeletal Pain Symptomology

The most common presenting symptom of musculoskeletal disorders is pain. The pain associated with musculoskeletal disorders is sometimes severe, with about a quarter of adult patients reporting pain at levels of ≥ 7 on a 0–10 numeric analog pain scale [14]. Musculoskeletal pain tends to be intense and localized. For pain in the joints, certain postures or movements may worsen or relieve the pain. Some people with moderate musculoskeletal pain describe the pain as similar to the feeling of an overworked or strained muscle. Regional pain of a single joint is a common presentation .

Body aches, malaise, and stiffness are all common in musculoskeletal pain patients. For many individuals, joint stiffness and aches are worst upon arising or after a period of inactivity but joints may “loosen up” as the individual starts to move around. Exercise can improve range of motion, mobility, and reduce pain, but patients who exercise must be careful not to overuse or injure muscles and joints .

Fatigue and sleep disorders are common in people with musculoskeletal pain and may be interrelated. Musculoskeletal pain can interfere with sleep or cause a person to wake in the night. Some patients with musculoskeletal pain may indicate that they cannot find a comfortable position for sleep at all and may try to sleep in recliners or sitting up. This reduces the quality and quantity of restorative sleep which, along with the chronic pain, can cause the patient to experience profound fatigue that can limit function [15].

A subset of patients with musculoskeletal pain may experience muscle aches, muscle “twitching,” or other uncomfortable sensations of the muscles. Chronic musculoskeletal disorders may have a neuropathic component, the pain of which is often accompanied by sensations of burning, shocks, or “electrical” pain. Neuropathic pain can have an abrupt onset and often occurs without warning. Neuropathic pain may also manifest as numbness or “pins and needles”. It must be noted that the experience of musculoskeletal symptoms varies widely among patients . Furthermore, the severity of symptoms or pain intensity may not necessarily correlate with the severity of the musculoskeletal injury.

A strong history, identifying pain type, severity, functional impact, and context should be conducted in all patients with pain. This will help the identification of patients with persistent pain and help in the selection of treatment options that are most likely to be effective [16]. Since MSK pain can be intractable, improving pain-related disability appears to be a more meaningful goal than pain control for some patients, so the use of disability-related metrics of quality-of-life assessments may be particularly relevant .

Any pain assessment tool should include the type of pain, severity, functional impact, and context. This helps guide the provider and patient to treatment options that are most likely to be effective . However, there is a strong recommendation by many international guidelines for using more comprehensive pain scores like the McGill pain questionnaire .

Generally, pain assessment tools can be classified into uni-dimensional or multi-dimensional scores .

- Uni-dimensional scores measure the pain intensity only, and are usually used for assessment of acute pain, e.g., visual analog scale (VAS), numerical rating scale (NRS), verbal rating scale (VRS), and facial expression for pediatric patients .
- Multi-dimensional scores measure the pain scores as well as the associated symptoms such as sleep disturbance, mood, appetite, behavior, and other related activities. Multi-dimensional scores are used for the assessment of chronic pain, e.g., McGill Pain Questionnaire, and Pain Inventory Scale .
- Neuropathic pain diagnostic scales include a set of pain symptoms, clinical examination, or labs. Leeds Assessment of Neuropathic Symptoms and Signs (LANSS) has five symptom items and two clinical assessment items. Douleur Neuropathique EN 4 questions (DN4) has ten items: seven symptomatic and three from clinical examination. Pain DETECT has nine self-reported items that do not require a clinical examination .

General Recommendations for Musculoskeletal Pain Management [17]

1. Patient's education about their condition, self-help resources, and management options and use shared decision-making processes. This includes appropriate advice about nonpharmacological treatment strategies, such as physical activity, rest, exercise, and so on.
2. Comprehensive patient assessments including detailed history taking with the assessment of physical and psychosocial factors. Physical examination including full neurological assessment, but radiological imaging is discouraged unless indicated.
3. Multimodal and multidisciplinary interventions should be part of a treatment strategy for patients with chronic MSK pain.
4. Facilitate early recovery or rapid resumption of work with continuous evaluation of the patient's progress including the use of outcome measures.
5. If other modalities are ineffective, consider the prescription of opioids by comprehensive assessments and screening for opioid abuse, the effectiveness of long-term opioid therapy, monitoring for adherence and side effects, and discontinue opioids because of lack of response, adverse effects, and abuse .

DISCUSSION

Musculoskeletal pain is a collective term for a variety of conditions of different etiologies and different disease trajectories, but taken together they represent a substantial burden on patients, society, and the healthcare system. Musculoskeletal pain can be secondary to (or exacerbated by) multiple etiologies and often responds to a multimodal therapeutic approach. Musculoskeletal pain in different body areas shares similar features, prognostic factors, and clinical course, and therefore it may be possible to identify consistent overarching recommendations for assessment and management.

Patient screening is an important step in identifying the groups at risk or being most vulnerable. Identifying common recommendations could be a useful way to improve the quality of care. Based on the literature, the authors support a treatment hierarchy that involves non-pharmaceutical conservative management for chronic musculoskeletal pain with home exercises along with acetaminophen and/or NSAIDs initially. Should this conservative management not manage pain appropriately, structured therapy courses and pharmaceutical intervention may then be indicated. Should this continue to provide little to no pain relief, the use of minimally interventional procedures may be indicated along with continued therapy.

While drug therapy for musculoskeletal pain is frequently prescribed and often helpful, it is associated with important risks and not all patients respond. When pharmacological therapy is to be incorporated, it should be in the context of a shared decision-making model where both patient and prescriber evaluate the risks and benefits of various therapeutic choices.

CONCLUSION

Holistic care for patients involves treating musculoskeletal pain in the context of the patient's life such that comorbid conditions, lifestyle, patient preferences, and mental health are all taken into account. Conservative therapies such as weight loss, healthful eating, exercise, and relaxation techniques can be helpful along with assistive devices (such as braces or shoe orthotic inserts) along with psychological counseling and coping skills, but these approaches require a level of motivation and commitment on the part of the patient.

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