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CHRONIC JOINT PAIN MANAGEMENT

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Abstract:

Introduction: *In the year 2010, the Pain Management Task Force of the American College of Rheumatology (ACR) stated on their guidelines regarding pain as a crucial consideration within the clinical practice of rheumatologists and rheumatology around the world. The Executive Committee of the ACR later recommended the task force to raise the knowledge of a rheumatologist's part during the management of pain and the place of pain in rheumatology-related research, practice, and clinical education protocols. The report included guidelines to be recommended by the ACR and the Association of Rheumatology Health Professionals (ARHP). Since the year 2010, the Institute of Medicine published their guidelines with the title "Relieving Pain in America," which focused on the importance of tailoring pain care to the special needs of the level of individual patients; these guidelines also emphasized on the high importance of inter-disciplinary clinical care. however, in the last decade, the guidelines of ACR Pain Management Task Force have achieved only limited goals as had occurred similarly with similar guidelines published by other association like the Institute of Medicine. With the 2010 Task Force guidelines in mind, this review will provide an update of the status of the place of pain as a general concern during the practice of the subspecialty of rheumatology.****Aim of work:*** *In this review, we will discuss Chronic joint pain management.****Methodology:*** *We did a systematic search for Chronic joint pain management in the emergency department using PubMed search engine (http://www.ncbi.nlm.nih.gov/) and Google Scholar search engine (https://scholar.google.com). All relevant studies were retrieved and discussed. We only included full articles.****Conclusions:*** *The issue of pain and its therapy is still an area of research, debates and clinical significance. Our understanding of pain pathophysiology is improving but remains not complete. Pain therapies remain insufficient in benefits and linked to with several toxicities. Despite this, rheumatologists and physicians continue to treat patients with painful rheumatic conditions on a daily basis. The specialty of rheumatology, through its professional organizations ACR and ARHP must keep the forefront of advances in the elucidation of pain and its impact on patients with rheumatic diseases. The ACR and ARHP must be committed to supporting pain research and informing its membership, including trainees, about advances in this field.*

Key words: *Chronic joint pain, causes, management.*

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INTRODUCTION:

In the year 2010, the Pain Management Task Force of the American College of Rheumatology (ACR) stated on their guidelines regarding pain as a crucial consideration within the clinical practice of rheumatologists and rheumatology around the world [1]. The Executive Committee of the ACR later recommended the task force to raise the knowledge of a rheumatologist's part during the management of pain and the place of pain in rheumatology-related research, practice, and clinical education protocols. The report included guidelines to be recommended by the ACR and the Association of Rheumatology Health Professionals (ARHP). Since the year 2010, the Institute of Medicine published their guidelines with the title *"Relieving Pain in America,"* which focused on the importance of tailoring pain care to the special needs of the level of individual patients; these guidelines also emphasized on the high importance of inter-disciplinary clinical care [2].

however, in the last decade, the guidelines of ACR Pain Management Task Force have achieved only limited goals as had occurred similarly with similar guidelines published by other association like the Institute of Medicine. With the 2010 Task Force guidelines in mind, this review will provide an update of the status of the place of pain as a general concern during the practice of the subspecialty of rheumatology. In this review, we will also discuss the most recent evidence regarding Chronic joint pain management

METHODOLOGY:

We did a systematic search for Chronic joint pain management in the emergency department using PubMed search engine (http://www.ncbi.nlm.nih.gov/) and Google Scholar search engine (https://scholar.google.com). All relevant studies were retrieved and discussed. We only included full articles.

The terms used in the search were: Chronic joint pain, causes, management

Research and training aspects of pain management in rheumatic diseases

Although the management of pain in rheumatic and musculoskeletal diseases in general must become a topic of high importance in the everyday practice of rheumatology, research and education on pain are usually filled with uncertainty, ambiguity and lots of debates. moreover, the role of rheumatologists in the management of pain became more complicated and controversial due to the national concern about the worrisome increasing evidence of opiate abuse and related complications and death. Different specialties providing care for patients who have painful diseases thus face special difficulties when they create research priorities and prepare their plans to balance the personal needs of individuals with the societal needs on the level of the public health emergency.

currently, rheumatologic diseases are usually categorized into three big groups according to the presence of the underlying pathogenesis and the suspected etiology of the pain. These groups include inflammatory diseases, both joint-related and systemic;
conditions of joint degeneration and structural abnormalities; and conditions of pain processing and perception. Although this grouping is usually used, it is an over-simplification that could potentially obscure commonalities inherent in a more integrated and encompassing model of pain that can underpin a research protocol. The grouping is further challenged with the dynamic nature of rheumatologic conditions as the contributions of the varying processes might vary and change as time passes; moreover, detecting the contribution to manifestations of these processes is challenging
without the presence of a reliable laboratory biomarker.

Rheumatoid arthritis (RA) is considered to be a pertinent example of the manner where a narrower perspective dependent on simplified disease grouping could impact thinking about etiology and management. Along with the presence of stiffness and fatigue, pain is usually the first clinical manifestation of RA. With the raising benefits of biological and targeted synthetic disease-modifying anti-rheumatic drugs, remission is currently considered a realistic objective of many patients, with the usual sudden response of RA patients to DMARDs indicating that inflammation might suffice to explain the manifestations of RA-related pain. In fact, questions in at least some of the commonly used goal measures to evaluate remission do not directly assess pain. Rather, the questions relate to concepts like "general health" and "condition activity" and include evaluations like "Considering all of the ways your arthritis has impacted you, how do you feel about your arthritis is today?" In everyday patients care, the use of formal goal measures looks limited, indicating that decision-making is dependent on other clinical evaluations.

As the effective agents to manage RA inflammation target the immune system, the success with treat-to-

target approaches could indicate that inflammatory mediators represent the relevant pain drivers in this condition. In fact, current treatment paradigms indicate that, if a specific DMARD is not shown effective, then a switch to another agent with another mode of action must be considered [3]. As shown in clinical trials on new agents, those patients who are severely affected by RA might receive as many as five different agents of DMARDs through the course of their condition and still display progressing disease activity. If a single DMARD agent is not shown beneficial, then combination therapy is usually used and many patients simultaneously receive agents targeting different immune pathways. Examples could include using triple therapy with methotrexate, sulfasalazine and hydroxychloroquine or the combination of methotrexate, along with a TNF blocker and a low dose prednisone. This protocol can make sense when the inflammation is predominant or even the not only cause of pain. If pain in some other patients, on the other hand, reflects the impact of damage or central and peripheral sensitization, then a focus only on inflammation could limit Specific types of evaluation and the application of a more multi-disciplinary Protocol to pain management is recommended [4]. In the study on osteoarthritis, research on the impact of gender, ethnicity and ethnic group and age has provided great insight into the basis of clinical manifestations [5]; maybe, unfortunately, these issues have received far less attention in the study of RA despite patient demographics can impact the perception of pain and processing along with the inflammation. In this regard, lower levels of education has been correlated with higher levels of pain. In addition, if pain from inflammation is seen primarily as an acute effect on inflammatory mediators on pain transmission, then long-term impact of chronic inflammation on central as well as peripheral sensitization might not be considered. In addition, just as different cytokines can stimulate distinct and characteristic types of immune responses (*like* Th1, Th2 and Th17 cell responses) or endophenotypes, these mediators might vary in the manner in which they shape and alter the processes of pain.

In patients with RA, the inflammation will provide an important mechanism to cause pain despite the additional possible role of the damage and distress. In patients with osteoarthritis (OA), the role of inflammation has been less obvious. OA is usually thought to be a non-inflammatory condition caused by cartilage damage and resulting in mechanical imbalance. Inflammation usually follows the occurrence of degeneration and injuries, but, suggesting that inflammation also affects pathogenesis and that, in OA, cytokines might lead to pain as well as disease progression. Regardless of the relevance of these cytokines to pathogenesis, delineating their effects might be more challenging in patients with OA then RA because of their effects and local action, requiring the analysis of synovial fluid rather than blood.

however, the recognition that specific cytokines as well as mechanisms of inflammation might drive pain in OA can further expand the conceptualization of the condition and lead to the development of new research protocols to elucidate the origin of pain in this common condition. Although peripheral and central sensitization might contribute to clinical manifestations in inflammatory arthritis along with OA, the research of sensitization has dominated research only on fibromyalgia. The nervous and immune systems are not, though, separate universes, but rather have significant interactions [6]. therefore, cytokines might contribute to clinical manifestations in at least some patients with fibromyalgia whereas fibromyalgia might develop in the presence of inflammatory arthritis [7]. Determining the links between inflammation and central and peripheral sensitization could, therefore, look to be a highly relevant areas of inquiry that could better fit fibromyalgia in the framework of rheumatology. In this issue, assessing the association between depression and other neuropsychiatric diseases with fibromyalgia (along with inflammatory arthritis and OA) represents another important area for research priority as the concept of multimorbidity expands and underpins more holistic and interdisciplinary treatment.

At the time of the first statement of the ACR Pain Management Task Force, research on
genetics were just starting to give new sights into the causes of pain and its experience in different conditions. The number of genes that are involved in the mechanism of pain is very huge and is likely to be of a total of several hundred. Among these genes, enzymes which are involved with metabolism of mediators (catechol-O methyltransferase or COMT) and voltage-gated sodium channels can both have properties which are potentially relevant to disparities among patients in pain experience. Research on these systems has helped delineate inherited pain disorders like inherited primary erythromelalgia and familial episodic pain syndrome.

Decreasing their role in condition like RA or OA, on the other hand, remains to be difficult due to their clinical complexity, the coexistence in the individual patient of other pain processes (*like* inflammation,

damage and central sensitization) and he effect of treatment [8]. On the other hand, in fibromyalgia where central sensitization is more prominent and inflammation much less so, the likelihood of determining the effect of genetic factors looks higher. Hopefully, studies would continue to detect protocols to understand the genetic underpinning of pain so that they may be relevant in the full spectrum of painful conditions which are generally treated by rheumatologists.

This endeavor would also entail the development of highly sophisticated clinical ways so that the types of pain that patient's experience (pain from inflammation and damage in RA, rest pain *vs.* pain on activity in OA) could be better analyzed. It may even be possible that genetic contributions change with the joints affected.

Pain must be one of the most exciting aspects in rheumatologic research as well as the most common aspects of training and education. however, statements of the national meeting remain limited as do publications in most rheumatologic journals. The number of rheumatologic researchers who explore pain mechanisms is also relatively small. Several factors might contribute for this condition and would need attention if rheumatology is to advance optimally in the future.

Another essential factor corelates with the inherent complexity of analyzing pain in a disease like RA where inflammation and damage are predominant and might change dynamically throughout the course of disease. Similarly, the severity and quality of pain can also change throughout the course of OA as damage and secondary inflammation occur. For a researcher who want to assess pain, these are very complicated systems especially in studies that are trying to relate to endophenotype to genetics. In this issue, the translation of new understanding of pain mechanisms into treatment has been relatively slow and usually not certain for rheumatologic conditions. Clinical disease outside the scope of rheumatology (*e.g.* neurology) might be more amenable for detecting these associations and allowing their translation into new more advanced therapies.

Another factor for the relatively less attention to pain in the rheumatology field is practical and associates with the time and attention that is required to treat chronic pain especially when using interdisciplinary and multidisciplinary protocols. Given the shortage of rheumatologists, physicians usually have to alter their practices to work at
higher volumes. Patients who have chronic pain could need considerable time of care especially now with the current difficulties regarding prescription of opiates and the attendant worries about their potential overuse and abuse even in patients for whom they are indicated. Because of the development of palliative care and pain
medicine as clinical specialties, rheumatologists may refer patients to these providers; as a consequence, they have options for the management of their patients with severe pain that decrease their direct involvement in prescription or utilization of certain medications or modalities.

Although the referral of patients to pain physicians may facilitate certain aspects of clinical care, such a situation may separate consideration of pain from other clinical manifestations in a setting of complex, multisystem condition and limit scientific advance. The ACR Pain Management Task Force represented an essential step to encourage inquiry into pain and build a framework for its understanding across the spectrum of rheumatic conditions. Although almost ten years have passed since the creation of this Task Force, its work has just started and remains as vital now as always to keep pace with the increasing demands of care for those who have not yet had benefits from the modern armamentarium of rheumatologic therapies.

MANAGEMENT IN RHEUMATIC DISEASE:

Pharmacologic therapies

In the year 2010, the American Pain Society labelled pain as the "fifth vital sign." The results of that designation caused a heightened measurement of pain in clinical care, primarily through documentation with visual analogue scales; these scales are subjective, on the other hand, and can be challenging to apply to clinical manifestations to produce quantitative information. As suggested in the Task Force report, PROMIS (Patient Reported Outcome Measures Information System) has developed highly sophisticated means of assessing a variety of health outcomes including pain along with others.

Pain VAS scales distinguish between active and control therapies in RA-related trials at a higher level of significance than ESR, CRP, or tender joint counts. Moreover, to visual analogue scales, proper evaluation of pain measures impact on interference, function, sleep, mood and fatigue. In addition, in the clinical arena, effective treatment of pain was needed with possible physician sanctions by State Medical Societies for undertreatment according to subjective scales.

The unintended consequence of this focus on treatment of pain was the raising prescription of opioid analgesics, as opposed to the multimodality team protocol suggested in the 2010 statement. A significant elevation in opioid prescriptions has recently occurred in the United States, with two million Americans becoming addicted and with fifteen million misusing these drugs [9]. The Surgeon General called on physicians to be mindful of their choice of pain therapy to consider non-opioid pain-treatment alternatives [10].

The predicament for the clinical rheumatologist is that pain remains to be a crucial manifestation of rheumatic diseaes. For example, the most important clinical manifestation of osteoarthritis, the most common rheumatic disease, is pain. That manifestation contributes to functional limitations and decreased quality of life among patients [11]. Causes of pain in rheumatic diseases are not fully understood but, as we discussed, are likely to be complex and change between individuals as well as stage of conditions. For example, the sources of pain in osteoarthritis are multiple, involving most structures of the joint, surrounding muscle, tendons, and ligaments, along with the peripheral and central nervous systems.

Drug and interventional treatments, including peripheral joint injections, for musculoskeletal pain is limited and only partially beneficial. Paracetamol is generally recommended as an analgesic as it has relatively less toxicities when compared to other drug treatments when used at the lower recommended 2000 mg daily dose. however, paracetamol is not effective for the treatment of low back pain, a common musculoskeletal condition, and is minimally beneficial for the treatment of osteoarthritis. Non-steroidal anti-inflammatory drugs (NSAIDs) are analgesic and antiinflammatory and are the best choice drugs in rheumatic diseases treatment [12]. On the other hand, their benefits are not consistent to be beneficial in most if not all rheumatic diseases. For example, their use in spinal pain is not big enough in many instances to result in a consistent, clinically significant improvement in the perception of pain. NSAIDs are also correlated with the development of gastrointestinal, cardiovascular, and renal toxicities which decrease their use in the elderly population who are at higher risk for developing back pain and osteoarthritis [13].

Opioids generally are considered effective analgesics for acute pain but are linked to several limitations as the ideal analgesic. In the setting of higher number of opioid overdoses and misuse of prescribed opioids, the CDC released their guidelines for prescribing opioids in cases chronic pain. The report stated that most clinical trials of opioids are six weeks or less in duration and , thus, do not provide sufficient data on the possible benefits and risks associated with chronic usage. The guideline recommended that use of opioids only in cases where the expected benefits of both pain and function are thought to overcome risks to patients. Opioids are to be used in combination with non-pharmacologic and non-opioid pharmacologic therapy. While it could be ideal to have no rheumatic diseases patients using opioids, that is not the current situation.

In a practice of one of the physicians, fifteen percent of patients are using long-term opioid therapy in the setting of chronic pain linked to disabling arthritis. The pressure for physicians to carefully observe patients and reduce and eliminate opioid treatment may become the expected norm.

Drug therapies targeting pain inhibitory mechanisms in the central nervous system have effects in many patients with osteoarthritis. Selective serotonin and norepinephrine reuptake inhibitors have showed high efficacy in reducing pain in osteoarthritic joints and chronic low back pain when compared to using placebo. On the other hand, this family of drugs is linked to toxicities which present as nausea, xerostomia, fatigue, diarrhea, hyperhidrosis, and dizziness. In older patients, these toxicities can potentially limit the number of individuals who are tolerant of these drugs. A new drug class with a different mode of action is the one consisting of antibodies which are directed at nerve growth factors [14]. Nerve growth factor (NGF) is a crucial regulator of nociceptive sensitization following tissue injury. Antibodies directed against NGF have demonstrated significant improvement in clinical trials for significant reduction in pain in osteoarthritis and chronic low back pain [15]. Although this category of pain treatment demonstrates promise, the ideal dose of these antibodies remains to be studied. Higher doses of antibody might be linked to neurologic symptoms including paresthesia's. Concomitant use with NSAIDs might predispose to rapidly progressive osteoarthritis and joint replacement. These drugs have not been yet approved by the Food and Drug Administration for clinical use.

CONCLUSIONS:

The issue of pain and its therapy is still an area of research, debates and clinical significance. Our understanding of pain pathophysiology is improving but remains not complete. Pain therapies remain

insufficient in benefits and linked to with several toxicities. Despite this, rheumatologists and physicians continue to treat patients with painful rheumatic conditions on a daily basis. The specialty of rheumatology, through its professional organizations ACR and ARHP must keep the forefront of advances in the elucidation of pain and its impact on patients with rheumatic diseases. The ACR and ARHP must be committed to supporting pain research and informing its membership, including trainees, about advances in this field.

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