

Evaluating and Treating Chronic Musculoskeletal and Neuropathic Pain-Addressing the Not-An-Opioid Epidemic

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Abstract

Chronic musculoskeletal and neuropathic pain is a common occurrence in the daily practice of orthopaedic surgeons.

There are several diagnostic approaches and, in most cases, pharmacotherapy and physiotherapy are the golden standard of treatment.

However, in the recent years there is an overuse of opioid and non-opioid pharmacological agents which are highly addictive. Around 10% of US patients suffer from opioid addiction and an unknown number of them from pregabalin addiction. Current statistics for the Kingdom of Bahrain are not available, nevertheless the ministry of health considers pregabalin a controlled medication and prescription from consultant is mandatory in order to dispense from the pharmacy.

It is important to recognize the problem in local communities and internationally and raise awareness regarding the abuse of such medications. Orthopaedic surgeons need to remain vigilant in order to recognize addiction and be well informed and supported by government and private regulatory authorities to control the abuse and offer well designed rehabilitation protocols.

Keywords: *Chronic Musculoskeletal; Neuropathic Pain; Opioid Epidemic*

Introduction

Currently, a large number of patients visiting hospitals have chronic musculoskeletal and neuropathic pain as their main complain [1]. The majority of such patients consult doctors in orthopaedic clinics. Thus, orthopaedic surgeons have the responsibility to proper diagnose such patients, based on physical and radiological findings and plan a suitable treatment scheme. At present, according to the Institute of Health Metrics and Evaluation, in 2017, musculoskeletal disorders and especially low back pain was among the top causes of disability [2].

This is certainly a multifactorial issue, because it is found that most people who suffer from chronic musculoskeletal pain have other psychosocial problems as well [1].

In their majority, they suffer form depression and anxiety, which negatively affects their daily activities, work and social interaction.

At present, limited research data exist in Bahrain, nevertheless it is important to establish an epidemiological directory to diagnose, treat and effectively support and monitor such cases.

Evaluating chronic musculoskeletal and neuropathic pain

Chronic musculoskeletal pain includes any muscle, bone, ligament, tendon or nerve derived pain [3]. When pain persists for more than 3 - 6 months is referred to as chronic pain.

Whereas, chronic neuropathic pain is a form of chronic pain originating from the nerves [4].

Fibromyalgia

Fibromyalgia is a chronic pain disorder which manifests as severe generalized body pain associated with fatigue and various cognitive complaints. According to the National Fibromyalgia Association, its prevalence is 3 - 6% and 9:1 female-to-male ratio. It is currently the third most common musculoskeletal condition, following lower back pain and osteoarthritis [5].

In order to properly evaluate pain a variety of imaging types exist to confirm the source of musculoskeletal or neuropathic pain, such as plain X-rays, Bone scanning, Ultrasonography, Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) [6].

Spine pain

Cervical, thoracic and lumbar spine pain is one of the most common causes of disability in the world [7]. Around 10 - 15% of the US population is diagnosed with lower back pain (LBP) each year.

Complex regional pain syndrome

This is a form of chronic pain which typically involves an arm or leg and develops after injury, stroke, heart attack or surgery. The exact mechanism remains unknown, however it is believed to be an exaggerated response of the nerves to stimuli. It manifests with multiple symptoms such as pain, paraesthesia, effusion, changes in colour and temperature, weakness and hypersensitivity [8].

Osteoarthritis

It is a degenerative disorder of the bone cartilage in the synovial joints [9].

It is estimated that more than 30 million Americans are suffering from OA. Symptoms include pain, swelling, reduced ROM and crepitus.

Imaging/Lab

In order to properly evaluate pain a variety of imaging types exist to confirm the source of musculoskeletal or neuropathic pain, such as plain X-rays, Bone scanning, Ultrasonography, Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) [6].

Laboratory tests include ESR (Erythrocyte Sedimentation Rate) which is a test to evaluate the rate of red blood cells which fall to the bottom of the test tube. A high ESR indicates inflammation, however it is not specific. Creatine Kinase, which is a muscle enzyme, is high when there is muscle destruction. Anti-CCP (Cyclic Citrullinated Peptide Antibody) is useful in diagnosing rheumatoid arthritis. Anti-nuclear antibodies are helpful when trying to establish a diagnosis of systemic lupus erythematosus. While HLA-27 is a gene found in people with spondyloarthritis [6].

While evaluating chronic pain, physicians should take into consideration three important factors:

1. **Denouncement:** A patient could potentially attribute all their symptoms to the diagnosis given by the health care professional.
2. **Incentive:** A patient could request compensation, sick leave or disability retirement.
3. **Wrong focus:** A patient who focuses only on their diagnosis and refuses to seek psychological support or any other form of complimentary care [1].

Treatment

Options vary significantly according to certain factors, such as patient characteristics and preferences, physician's experience and severity of disease [10].

There is evidence suggesting physiotherapy and psychological support are effective measures to manage chronic musculoskeletal pain [11].

NSAIDs and opioids may have great results in reducing pain, however they also have serious adverse effects.

Corticosteroid injections, nerve blocks, epidural and facet joint injections show significant relief of pain and should be considered for the treatment of chronic musculoskeletal and neuropathic pain.

In the recent years, there is a huge increase of minimally invasive spine therapies, such as epidurals, nerve blocks and facet joint injections [7].

Surgery also has a significant role in alleviating symptoms. For example, decompressing nerve roots in lumbar spine or creating artificial joints for severe OA. All surgical procedures have very specific indications and are only used as the last step in treatment, as they are not infallible.

With regards to opioids

Opioids are a group of medication which is originally found in the opium poppy plant. They can be manufactured in the lab or derived from the plant. These drugs act directly to the brain by blocking pain signals.

However, they may also cause a sense of euphoria. As such, they can be highly addictive.

Side effects include constipation, dizziness, drowsiness, confusion and difficulty in breathing [12].

According to Von Korff [13] current guidelines recommend Chronic Opioid Therapy, when other treatment options have failed or are not suitable.

Nevertheless, randomized controlled trials of opioids for chronic pain are limited to small number of participants and short duration of typically less than 3 months, thus they have been characterized as low quality [13].

What do we know about the opioid crisis?

- An estimate of 29% of patients prescribed opioids for chronic pain misuse them.
- Between 8 and 12% of patients suffer from addiction to opioids.
- An estimated 4 - 6% of patients who misuse prescription opioids transition to heroin.
- Around 80% of people who use heroin first had an opioid prescription disorder.
- Overdose of opioid grew by 30 percent throughout July 2016 to September 2017 in 45 states in the US [14].
- In 2012, 259 million opioid prescriptions were issued and 20.101 overdoses deaths related to prescription pain medications were reported [15].

With regards to pregabalin

Pregabalin is an inhibitor of Ca^{2+} channel $\alpha 2\delta$.

It attaches to the alpha2 delta auxiliary connectors of voltage-gated calcium paths. Conversely, it does not connect to GABA receptors or reduce the flow of serotonin, dopamine or noradrenalin in the brain.

It minimizes the stimuli reaching the brain and sufficiently discontinues the chemical flow that transports pain waves across the nervous system [16].

This medication is an anti-epileptic drug or anticonvulsant.

In general, pregabalin is used to treat seizures, fibromyalgia and neuropathic pain [17].

At present, limited literature exists regarding the use of pregabalin for chronic musculoskeletal pain. In Complex Regional Pain Syndrome type I or II (with or without confirmed nerve injury), pregabalin is reported to be one of the first choice of drugs [18].

Adverse effects of pregabalin include: Dizziness, Sleepiness, Peripheral edema and water retention, Ataxia, Fatigue, Tremors, Xerostomia, Constipation, Weight gain, Blurred vision, Diplopia, Depression, Suicidal thinking [19].

In the US, over 16 million people have been prescribed LYRICA since 2005 [20] and in England and Wales around 5.5 million prescriptions of pregabalin in 2016 [21].

In the author's hospital in Bahrain, around 100 of pregabalin prescriptions are written per month in the recent years.

Lyrica overdose

According to current evidence, Lyrica overdose is rarely fatal. Even 8000 mg of Lyrica taken by an adult did not cause death. Symptoms of a Lyrica overdose vary significantly. They may include mood changes, fatigue, confusion, depression, agitation and restlessness.

Lyrica withdrawal

Lyrica may cause an unpleasant and forceful withdrawal syndrome when stopped suddenly.

Withdrawal symptoms can be headaches, seizures, nausea, dizziness, diarrhea, vomiting, irritability, insomnia, nightmares and tingling sensations.

Recognising addiction

What are the signs of lyrica abuse?

If yes is the answer to any of the below questions, the patient could be a Lyrica abuser

- Do you feel that Lyrica has significantly decreased relieving your pain?
- Do you experience any negative thoughts or withdrawal symptoms when you stop taking Lyrica?
- Have you tried to stop taking Lyrica in the past but failed?

- Have you ever abused alcohol or drugs?
- Do you take Lyrica with alcohol or other drugs?
- Are you taking Lyrica even though you experience side effects such as dizziness, vomiting, irritability or nightmares?
- If money is not an issue, would you consider signing up for a program to help you deal with chronic pain, using non-pharmaceutical interventions? [16].

Weaning off the patients

First step is for the physician and patient to recognise the problem.

Then, they should agree to a rehabilitation program which suits the patient, according to his/her chronic condition, age, profession, education and social status.

This can be done as inpatient or outpatient treatment.

The physician should gradually reduce the prescribed dosage and advise the patient to seek additional aid by the local community.

The detox treatment for Lyrica is multifactorial and depends on a team of professionals, for medical and psychiatric support [22].

A rehabilitation program for Lyrica addiction may include:

- Educational sessions regarding addiction
- Behavioral therapy and specialized therapies such as art, music etc.
- Introduction to exercise and proper nutrition
- Family education for additional support
- Professional development and assistance in finding an appropriate job [22].

There is an option to use medication during the withdrawal period, in order to minimize the side effects. Treatment protocols for Lyrica are relatively new, as such no extensive literature supports the use of medication.

Clonidine which is a centrally acting alpha-agonist hypotensive agent, with the brand name of Catapres, and is commonly used to control high blood pressure, could also be used during withdrawal period as it also works as a mild sedative. Dexmedetomidine (Precedex) could be used in case clonidine is not available, with similar results, as it is also a sympatholytic drug, which works as an agonist of alpha-adrenergic receptors.

Medical professionals might need to prescribe medications to treat a variety of withdrawal symptoms:

- **Seizures:** If a patient has experienced seizures as part of the withdrawal process, it is essential to prescribe anti-seizure medication to ensure continued health and safety.
- **Gastrointestinal:** Nausea should be adequately treated with specific medications, such as Zofran. Diarrhea or upset stomach can be controlled with Imodium.

- **Insomnia:** Sleep medication that is not addictive should be considered, such as trazodone.

Discussion

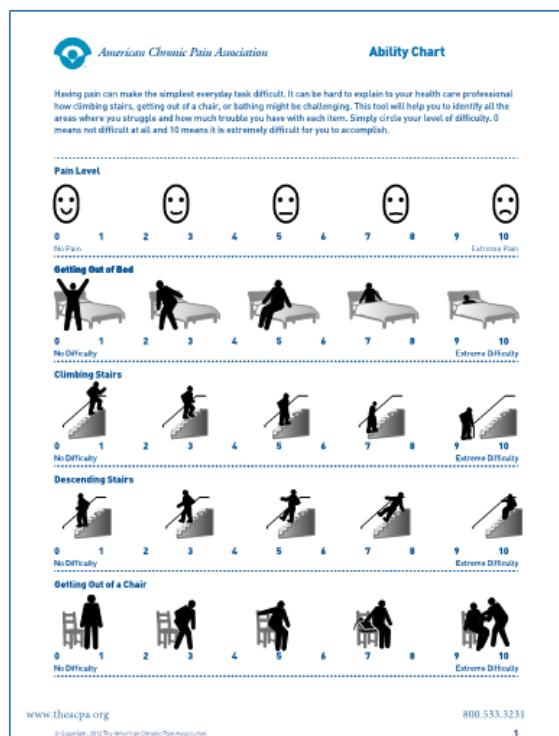
Currently there is one government rehabilitation center in Bahrain which is operating for male patients only. Multiple centers should be available to the public, both as outpatient and inpatient facilities and should be able to care and support members of the patient’s family as well.

There is a need for further research into pregabalin addiction and rehabilitation protocols. Public and private medical sectors should establish appropriate units for professional detox schemes in Bahrain, including a team of qualified health care providers. Educating the public and especially the youth about the devastating effects of drug abuse is of paramount importance. Physicians should familiarize themselves with opioid and non-opioid drug abuse issues in order to be able to recognize addiction and offer professional assistance.

Coordination between private and government medical facilities is critical to provide the optimal treatment plan to all patients, as a multidisciplinary team is essential for best outcome.

Conclusion

Chronic Musculoskeletal Pain is quite common in modern societies. Orthopaedic Surgeons usually are the first to consult patients with the condition and often treat the pain with opioids or pregabalin. There is a need to acknowledge the misuse of opioids and the not-an-opioid epidemic through national directories and online medical files with monitoring of controlled medication prescriptions. Physicians should be alert in order to recognize addiction and qualified to offer rehabilitation protocols tailored to each patient.



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