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### Management of Chronic pain-A Major Concern for Addiction

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#### ABSTRACT

Pain is a perception which is caused by triggering nervous system. It will provide signals to individual regarding tissue damage. Chronic pain can occur for months to years. It is also considered as the pain during terminal stage of the illness. Some kinds of chronic pain include headaches, joint pain, pain from injury, and backaches. The treatment for chronic pain includes pharmacological and non-pharmacological approaches. Pharmacologically, medications such as Narcotics, Local anaesthetics, Epidural injections, Nerve block injections and Trigger Point Injection with corticosteroids. Non-pharmacological treatment includes acupuncture, chiropractic care, transcutaneous electrical nerve stimulation and Electrothermal Therapy. This article reviews about how chronic pain therapy leads to addiction and also about various treatment options.

#### INTRODUCTION

Pain is a perception which is caused by triggering nervous system. It will provide signals to individual regarding tissue damage. The process involving stimulation of sensory nerve cells (nociceptors) by harmful stimuli to the body, which travels along the spinal cord and reaches brain, is called nociception [1-4]. Nociceptive Pain, Neuropathic Pain and Psychogenic Pain are the types of pain. Pain can occur for a short time as well as for long time called as acute and chronic Pain respectively.

Chronic pain can occur for months to years. It is also considered as the pain during terminal stage of the illness. Some kinds of chronic pain include headaches, joint pain, pain from injury, and backaches. Others include sinus pain, tendinitis, carpal tunnel syndrome and pain affecting some parts of the body specifically shoulders, pelvis, and neck. Acute muscle or nerve pain can also leads to chronic pain [5-8].

The treatment for chronic pain includes pharmacological and non-pharmacological approaches. Pharmacologically, medications such as Narcotics, Local anaesthetics, Epidural injections, Nerve block injections and Trigger Point Injection with corticosteroids. Non-pharmacological treatment includes acupuncture, chiropractic care, transcutaneous electrical nerve stimulation and Electrothermal Therapy.

There are many options for treating chronic pain but practically physicians will utilize opioids (Narcotics) for management of chronic pain. Opioids will work by binding to the specific receptors in brain and spinal cord thereby blocking the stimuli to be transferred and reduces pain. Examples of opioids are: codeine, oxycodone, naloxone, methadone, meperidine, morphine, hydromorphone, acetaminophen, hydrocodone and fentanyl.

Many societies related to anaesthesia are creating impact among the public with their service and encouragement towards the research related to anaesthesia and pain research. One of them is World Federation of Societies of Anaesthesiologists (WFSA). WFSA is an society working towards the highest standards of patient care by collaborating with national and regional organizations [9-12]. WFSA will unite the anaesthesiologists around the world and provide patient care with safe anaesthesia. WFSA will collaborate with World Health Organization (WHO), governments, surgical organizations, other standard setters, NGOs, hospitals and with training centers.

There are many societies related to addiction which are providing their services by creating awareness among the people and making them educated regarding the several aspects of addiction and Rehabilitation. They include The Centre for Addiction Rehabilitation of Montreal - University Institute which is aiming to prevent drug abuse, misuse in the community thereby providing health and wellbeing. The mission of this society is to avoid several types of addictions like internet addiction, substance abuse disorders, alcoholism and cigarette smoking by creating awareness related to its risk and making them to follow the better therapeutic regimens. There is another society founded by physicians in 1988. It is committed towards emphasis of knowledge towards addiction by conducting some educational activities and by recognizing the physician's role and their importance in reducing these dangerous addictions [13-17]. ISAM is involved in activities like providing membership to physicians worldwide, providing information through websites on their upcoming activities, conducting annual and scientific meetings and releasing newsletters twice a year. The appreciable work by this society is conducting worldwide certification program in Addiction medicine.

Literature plays an important role in educating the people regarding specific topic. Exposure to this literature can be facilitated by some conferences and journals. Recently, 2nd International Conference and Exhibition on Pain Medicine in USA conducted some scientific sessions and poster presentations by speakers from worldwide on Pain assessment and its management for improvement of the quality of life. It created platform for speakers as well as audience of scientific community for sharing their experiences and scientific interactions. International Conference on Pain Research & Management is another conference on pain medicine research was conducted in Canada recently in month of October 2016, which facilitated speakers to exhibit their experiences on theme of "Exploring and acquiring the advances in Pain Research & Management". Many conferences which has to conducted are welcoming authors and scientific community regarding various aspects of addiction. One of them is 7th International Conference and Exhibition on Addiction Research & Therapy on November 13-15, 2017 at USA, where authors can submit their manuscripts on Addiction Science, Drug Abuse and Neurotoxicology, Neurogenetics of Substance Related Disorders, Behavioral Addiction and New Insight in Addiction Research. Another conference titled 7th International Conference and Exhibition on Addiction Research & Therapy which has to held on August 29-31, 2017 Prague, Czech Republic which focusses to encourage authors for accomplishing Addiction Rehabilitation and psychiatry problems [18-25].

Martin Grabois presented Muscle pain syndrome: Evaluation and treatment at International Conference and Exhibition on Pain Medicine held on June 08-10, 2015 at Chicago, USA which focused on etiology and diagnosis of two muscle pain syndromes named myofascial pain and fibromyalgia. The author discussed about classification of fibromyalgia as well as physical and past history examination which is useful for its diagnosis. Treatment focused on pharmaceutical, physical therapy, and psychological intervention aspects were discussed.

Miller et al. presented Psychiatric diagnoses and chronic opioid use and explained psychiatric symptoms, particularly depression and anxiety, associated with chronic use of opioid medications at International Conference and Exhibition on Dual Diagnosis. The author explained the main reason for these symptoms is overprescribing of opioids.

### **Chronic pain and addiction**

The use of opioids is not only restricted for chronic pain such as cancer pain but also for acute conditions such as fractures and post-operative pain. The drastic rise in the opioid use for management of pain leads to new formulations of opioids like oxycontin which is a controlled release formulation of oxycodone into existence in USA and Canada [26-34].

With the rise in use of pain medications, specific promotions and endorsements increased by national organizations indicating the liberal use of these medications restricting to chronic pain. As pain is symptom it is not a sign which can be easily measured as other vital signs such as heart rate and blood pressure, the Joint Commission on Accreditation of Healthcare Organizations recommended the use of these opioids in hospitalized patients along with the identification and evaluation of pain as fifth vital sign [35-40].

These opioids will have serious adverse effects if they are not used in a proper way as prescribed by the physicians. The adverse effects include constipation, drowsiness, nausea, and vomiting. The severe adverse effect of these narcotics is physical dependence and can develop tolerance in persons who took these medications for longer periods. Addiction is the condition occurred when individuals take these medications without proper medical supervision.

The persons who are suffering from chronic pain will have psychiatric comorbidities such as depression, anxiety, somatization, substance use disorders, and personality disorders. In one study conducted by Katon et al identified

major depression in people with chronic back pain, In other study conducted in US population, substance use disorders are more prevalent. It may be abuse or dependence.

Fishbain et al. conducted a study to determine percentage of chronic pain patients developing addiction or aberrant drug-related behavior's on chronic opioid analgesic therapy exposure. They identified chronic opioid analgesic therapy exposure will lead to addiction in a small percentage of chronic pain patients, but a larger percentage for aberrant drug-related behavior's. They also identified that the patients who are having previous history of drug abuse or alcohol abuse are at high risk <sup>[41-46]</sup>. For discontinuing opioids, the individual should seek physician's recommendations because if they stop using these medications abruptly it will leads to withdrawal symptoms.

### Addiction terminology

*The following are the some of the terminology used to identify opioid addiction:*

**Addiction:** Addiction is a chronic, neurobiological disease, which will have Aetiology related to genetic, psychosocial, and environmental factors. It is mainly characterized by behavior's like improper control over drug use, compulsive drug use, continued use of drugs despite harm and craving <sup>[47-50]</sup>.

**Physical dependence:** It is the stage when the drug is abruptly stopped or rapid reduction in the dose or rapid reduction in the blood levels of the drug in the body or sudden administration of antagonist.

**Tolerance:** It is the stage when the initial dose of drug lost its effectiveness in the body over time.

**Pseudo addiction:** This is the stage occurred in the under treated levels of pain in the patients whose behaviour will be normalized when the pain was controlled.

### Management of addictive behaviour in chronic pain patients

Formulation of drugs and routes of administration with rapid onset of action and intense effect will have increased potential for the individuals to abuse drugs mainly the pattern of drug administration is directly proportional. Long-acting synthetic Methadone can be used for the maintenance of addiction as this would normalize the patient and also prevents withdrawal symptoms and craving. It acts by blocking the euphoric effects short acting opioids. Same principle was applied in case of treatment of chronic pain by administering long acting opioids as they achieve a steady state and produce less euphoria than short acting opioids <sup>[51-60]</sup>.

Buprenorphine (partial  $\mu$ -agonist), is used as an alternative for maintenance therapy of addiction and also to avoid stigma of methadone in USA. In European countries and recently in USA, Buprenorphine is being used for management of pain. Methadone and Buprenorphine will protect for 24–48 hours approximately from withdrawal symptoms. The major drawback is limited time for analgesic effect (4–8 hours) <sup>[61-75]</sup>. It can be maintained by increasing the frequency of dosing for pain. In severe its use is limited because of its ceiling effect. Apart from that its prolonged occupancy over receptors and difficulty in its displacement from  $\mu$ -opioid receptors stands as an added advantage for agonistic effect along with morphine and fentanyl to provide analgesic effect in sever conditions <sup>[76-82]</sup>. In severe acute pain conditions like surgery this drug should be discontinued a week before surgery. So, the best choice of drug in chronic pain patients who are at high risk of addiction is buprenorphine <sup>[83-90]</sup>.

Along with the above treatment the physicians should carefully watch these individuals for opioid seeking behaviour thereby preventing craving. Careful monitoring of the patients with regular follow-up and screening tests may be useful in this case, thereby providing them psychotherapy if needed <sup>[91-95]</sup>.

Many journals dedicated towards the publishing of peer reviewed articles which helps the scientific community to gain knowledge regarding the recent research undergoing in the specific topics. Journal of Addictive Behaviors, Therapy & Rehabilitation is a peer-reviewed scholarly journal which aims to publish current developments in the mode of research articles, review articles, case reports, short communications, etc. in all areas of addiction science <sup>[96-100]</sup>. It is welcoming research related to Cognitive Behavior Therapy, Drug rehabilitation, Drug Abuse, Criminal justice and Counseling, Chronic and acute intoxication, Opioid Toxicity and Over dosage, Alcoholism, Smoking, Cognitive therapies of addiction recovery, Internet Addiction, Work addiction, Mobile addiction, Food addiction, Gambling, Shopping addiction, Sex addiction. Analgesia & Resuscitation : Current Research is a peer-reviewed scholarly journal welcoming scientific community worldwide to publish results of research on Analgesia, Anesthesia, Resuscitation, Critical care.

## CONCLUSION

Pharmacotherapy with opioids for chronic pain was suddenly popularized in clinical and medical practices. It should be recognised that opioid seeking behaviour and addiction were increasing in the population treated for chronic pain. Psychiatric therapy including counselling the patients as well as the care takers would be helpful in avoiding this dangerous addiction. Research focussed on the pharmacotherapeutic approaches would be helpful. Selective, careful and supportive treatment approach including standard treatment protocols should be followed.

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