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Review Article

Improving the Efficacy of the Medication Assisted Treatment with Eye Movement Desensitization and Reprocessing (EMDR) and Osteopathic Manipulative Treatment (OMT)

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Abstract

The United States has experienced a steady increase in the rate of opioid overdose deaths during the past two decades. The 2019 National Survey on Drug Use and Health stated that approximately ten million Americans aged twelve or older reported abusing opioids, and two million people were opioid-dependent

Key words: osteopathic manipulative treatment; chromosomal disorders; eye movement desensitization and reprocessing

Introduction

The United States has experienced a steady increase in the rate of opioid overdose deaths during the past two decades [1]. The 2019 National Survey on Drug Use and Health stated that approximately ten million Americans aged twelve [12] or older reported abusing opioids, and two million people were opioid-dependent [2]. Medication Assisted Treatment (MAT) with opioid agonists (buprenorphine, methadone, or naltrexone) is a commonly recommended evidence-based practice for the treatment of opioid use disorders (OUD) and/or substance use disorders (SUD). For patients with OUD, MAT is effective in preventing overdose, decreasing rates of relapse, promoting retention in treatment, and improving employment and family functioning [3, 4, 5]. Substance use disorders (SUD) are an important social and public health problem due to their negative consequences in terms of family disintegration, academic and occupational disengagement, mental illness, transmission of infectious disease, and mortality [6]. Particularly, a significant risk factor for substance use is the presence of multiple adverse childhood traumatic events [7]. The prevalence of post-traumatic stress disorders (PTSD) in patients with OUD/SUD is estimated to range from 25-51% [8]. Psychological trauma has a strong negative impact on the onset and prognosis of SUD. Some preliminary evidence exists of the efficacy of "Eye Movement Desensitization and Reprocessing (EMDR)" therapy in improving clinical symptoms in SUD patients [9]. Many OUD patients often concurrently suffer from depression, anxiety, and chronic pain [15]. Osteopathic Manipulative Treatment (OMT) is a non-invasive, manual therapy that utilizes physical contact to assess and treat neuromusculoskeletal dysfunction [10]. This article will discuss potential ways to enhance the efficacy of the current MAT for patients with OUD/SUD.

Neurobiology of OUD and SUD

Learning the neurological mechanisms of addiction is critical in understanding the struggles that OUD and SUD patients may experience. Among many regions of the brain, the midbrain, basal ganglia, amygdala, and prefrontal cortex are particularly important for modulating the reward pathways involving dopamine [18]. Dopamine is a neurotransmitter known as the body's natural opioid; it plays a key role in pleasure, reward, and motivation [19, 20]. Most importantly, opioids stimulate the reward system in the midbrain which releases dopamine in the area called the nucleus accumbens [18]. Although dopamine is beneficial in maintaining day-to-day activities, oversecretion can lead to uncontrollable cravings, and eventually, to chronic addiction. Such brain abnormalities have complex and long-lasting effects both physically and psychologically.

Medication Assisted Treatment (MAT)

Medication Assisted Treatment (MAT) is a "whole-patient" treatment that utilizes FDA-approved medications (buprenorphine, methadone, and naltrexone) in combination with behavioral therapy and social services to treat OUD/SUD. By combining supportive services, MAT has shown to increase rates of recovery [3]. However, many patients who receive MAT

still fail to maintain long-term abstinence [8,10]. One of the contributors to its failure is limited access to effective counseling and psychotherapy [7]. In a recent survey, 93% of physicians who prescribe medications for MAT reported that patients would benefit from receiving supportive services [10]. However, many clinicians lack the adequate expertise and training to provide these support services and the number of psychiatrists specializing in addiction medicine is lacking [7]. The fact that OUD/SUD are considered chronic disorders adds to the challenge of achieving long-term success. For an effective treatment to occur, it requires consistent physician visits, behavioral counseling, and other supportive services such as peer support groups.

Eye Movement Desensitization and Reprocessing (EMDR)

Current research reports that post-traumatic stress disorder (PTSD) is one of the most predominant concurrent disorders of patients with OUD which often interferes with the treatment outcome [4]. Additionally, patients with OUD in addition to PTSD have also previously experienced abuse, neglect, sexual assault, and adverse childhood experiences [4]. Initially created in 1987, the Eye Movement Desensitization and Reprocessing (EMDR) is an interactive, non-traditional, psychotherapy treatment that has shown success in the treatment of PTSD along with other psychological disorders involving adverse life experiences [12]. The steps of EMDR begin with the processes of history taking and diagnosing, using the DSM-V-TR [13]. The therapist determines the severity of the trauma based on the patient's history and may suggest EMDR treatment. First, the therapist and patient develop a safe place. A safe place is determined by the patient's favorite place, moment, or memory in one word. Anytime during the session, if the patient feels overwhelmed, the therapist asks the patient to verbalize the safe place. Verbalizing the safe place allows the patient to remember the smell, sight, and sound of the event that the safe place is related to. The desensitization process begins with the identification of the traumatic memory of the patient. The therapist asks the patient to keep the image or word that triggers their traumatic response while keeping their eyes focused on the therapist's finger as it moves side-to-side multiple times. The therapist repeats this process in order to process the traumatic memory until the trigger is lessened. Meanwhile, the patient is asked to pay close attention to their bodily reactions. If the patient feels the desensitization process to be overwhelming, the patient is asked to verbalize their safe place to neutralize their bodily reactions. At the end of the session, the therapist educates the patient on a coping technique to ensure that they are ready to proceed with their daily life. The therapist reevaluates the severity of the trauma during future sessions.

Osteopathic Manipulative Treatment (OMT)

A vast majority of OUD/SUD patients suffer from concurrent disorders; these include post-traumatic stress disorders (PTSD), major depression, bipolar disorder, anxiety disorders, and chronic pain [15]. Particularly, 64.4% of OUD patients had chronic pain and 61.8% reported having chronic pain before their initial diagnosis of OUD [14]. Although many patients with OUD/SUD report chronic pain, current MAT neither highlights nor includes a physical treatment option to treat chronic pain. Osteopathic physicians are in a unique position to manage chronic pain because the tenets of osteopathy embrace the idea that the body is self-regulating and self-healing; they are trained in Osteopathic Manipulative Treatment (OMT) which is a non-invasive, manual therapy that utilizes physical contact to assess and treat neuromusculoskeletal dysfunction. OMT is created based on the Five Models of Osteopathic Patient Care which include: biomedical, respiratory-circulatory, metabolic energy, neurological and behavioral [17, 21]. These models are used interconnectedly to restore normal function, improve homeostasis, and promote a better quality of life by mitigating somatic dysfunction. With the use of OMT, there are short-term neurobiological effects on the peripheral parasympathetic nervous system that are anti-inflammatory [16]. Current research also indicates promising results in treating and managing chronic pain with specific OMT techniques such as high-velocity low-amplitude thrust (HVLA), muscle energy, and indirect/direct myocardial release. A meta-analysis of 6 trials including 525 patients concluded that OMT noticeably reduced lower back pain intensity, and this pain reduction was comparable to the effect of nonsteroidal anti-inflammatory drugs [17]. Based on the results of this study, the American Osteopathic Association created its first clinical practice guideline in 2010 which led to subsequent studies reinforcing the use of OMT in patients with chronic back pain before resorting to pharmacologic or invasive procedures [17].

Healing through EMDR and OMT

Both EMDR and OMT are non-invasive and non-pharmacological interventions that can be of great benefit to current MAT. Many patients develop an addiction as a coping strategy to deal with stressful events, as they do not know healthy ways to cope. EMDR can be beneficial because it helps patients process unprocessed memories, such as a traumatic past, by providing an alternative way to release dopamine [22]. Another therapeutic effect of EMDR is its ability to restore the abnormal reward pathway created from drug addiction by altering the Habit Loop [23, 24]. The Habit Loop is a behavioral reaction to the reward pathway in the brain that consists of 4 stages: cue, craving, response, and reward [24]. EMDR provides positive reinforcement by replacing negative cognition with positive cognition. Substituting negative cognition encourages prosocial behaviors while discouraging maladaptive behaviors, leading to a smoother transition in the patient's psychological needs. This psychological reconstruction can positively affect the behavior during the patient's withdrawal phase by providing a pathway to make prosocial choices. Through physical manipulation that allows the physician to therapeutically touch the patient, OMT can greatly amplify the body's self-healing mechanisms by affirming the patient's pain [25]. The acknowledgment and compassion from providers about patients' pain can also provide them the comfort that they are seeking [25]. These palpatory techniques deepen the bond between osteopathic physicians and their patients through empathetic communication, allowing the body to heal itself while also diagnostically treating and improving the physiologic function of the musculoskeletal, immune, nervous, and endocrine systems [26]. The behavioral modifications of EMDR and the psychological healing through OMT can both work synergistically with the pharmacological aspect of MAT, strengthening its aims to provide a "whole-person" approach to treating OUD/SUD.

Conclusion

The United States is currently in the midst of a rapidly-spreading opioid epidemic. Current medication-assisted therapy (MAT) has had limited success in achieving long-term abstinence, in part due to its lack of availability and effectiveness of support services. Adding supportive services such as EMDR and OMT to the current MAT may not only increase patient satisfaction through the course of treatment but also work in synergy with the medications used. Further research should be conducted to assess the impact of adding EMDR and OMT to MAT in a clinical setting to create a better version of MAT that can better assist patients suffering from OUD/SUD.

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