A Comparison of Suboxone and Methadone in the Treatment of Opiate Addiction

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Abstract

Background:

Method:

Results:
unique risks and benefts, and the research does not indicate that one medication is a better option than the other. This

Conclusion:

Keywords: Suboxone; Methadone; Buprenorphine; Naloxone; Opiate addiction

Introduction

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erate of opiate addiction and dependence is growing exponentially

were combined to create Suboxone, which received Federal Drug Administration approval in 2002 [5]. To fully understand how Suboxone can be e ective, it is important to understand opiate receptors and Suboxone's e ect on the receptors. ere are three main opiate receptors in the brain, speci cally the mu, kappa, and delta receptors. ese are the same receptors a ected by endorphins, which can produce a sense of euphoria and are the main catalysts for creating habits. ese receptors are o en called "reward centers" because the release of endorphins onto these receptors causes pleasant sensations, or rewards, and thus increase the likelihood of the person performing the same actions repeatedly to release more endorphins. is is the same concept that happens when a person exercises; they are o en rewarded with a feeling of satisfaction a er the exercise is complete so that they will be more willing to repeat that act. e use of arti cial opiates, such as heroin or oxycodone, a ects the opiate receptors in the same way as endorphins, however the e ects are o en magni ed and the person can experience intense feelings of euphoria or high. ese intense feelings o en make it easy for a person to develop a habit that will continually act on the receptors to replicate those feelings. is is how the process of opiate addiction and dependence is developed [6].

induction dosing of oral methadone, the dose should not exceed 30-40 mg a day due to the risk of adverse events such as respiratory depression. In the induction phase it is recommended that the dose increases by 5-10 mg every 3-5 days. is phase typically lasts until a steady state of methadone as veri ed by blood test is achieved. A er the initial induction phase, there is a stabilization and maintenance dose. Regular serum methadone levels are drawn during the maintenance therapy. If levels are less than 200 ng/mL they are most likely sub-therapeutic and may experience withdrawal symptoms. Optimal levels are o en considered between 400-500 ng/mL. Dosages are o en adjusted based on serum results to help the patient avoid withdrawal symptoms. Methadone dosages are titrated based on these results; however, the amount of titration will be dependent on each patient's symptoms and history in addition to their serum levels. Once the patient is stabilized on methadone therapy, the ultimate goal is normally to taper the doses until the patient can eventually stop taking the medication [11]. is may take anywhere from weeks to years depending on the patient. Like Suboxone, it takes special providers to be able to prescribe methadone and monitor patient therapy. ere are many methadone clinics where this is done and methadone is more likely to be prescribed in a clinic setting rather than in the o ce like Suboxone [6].

Side e ects

One of the major risks of these medications is their abuse potential. Methadone is a full opiate agonist, which means that it can produce greater feelings of euphoria than the partial opiate agonist used in Suboxone. e addition of naloxone also helps prevent the abuse of Suboxone, because the medication cannot be diluted and injected intravenously like methadone. Studies show that methadone users also have a higher risk of overdose on the drug, in part because it does not include an opiate antagonist like Suboxone [6,12,13]. Both medications have shown to have a fairly low side e ect panel for serious side e ects. According to Reckitt Benckiser Pharmaceuticals Inc. [10], common side e ects of Suboxone include chills, fever, abdominal pain, vasodilation, withdrawal syndrome, constipation, nausea, vomiting, diarrhea, insomnia, and anxiety. e risk of respiratory depression or overdose is considered minor with Suboxone. e minor side e ects of methadone are similar and include drowsiness, headache, nausea, vomiting, constipation, anorexia, abdominal pain, insomnia, and dry mouth. However, methadone has been shown to have more serious cardiovascular side e ects. Several studies have shown a signi cant increase in the potentially fatal cardiac rhythm, torsades de pointes. ere is also a higher risk of overdose and respiratory depression than with Suboxone. A signi cant di erence related to mortality rates between Suboxone and methadone use has not been found. e side e ects and risks of serious adverse events must be considered when deciding between the two medications [6,12,14,15].

Patients that are pregnant or may become pregnant add another level of concern to providers when choosing appropriate opiate addiction treatment. Suboxone is ranked as a pregnancy category C, meaning that there have been studies that showed negative fetal e ects in rats and rabbits but not in humans. ere have not been any signi cant and well controlled studies to date to verify the safety of Suboxone during pregnancy, so the use of Suboxone during pregnancy must be based on a careful risk/bene t ratio [10]. Methadone is also ranked as a pregnancy category C. However, it has been in use longer and more studies have been conducted on its safety during pregnancy. Due to this, it is generally chosen as the best treatment of opiate addiction during pregnancy [16]. Based on these studies, the choice between the two medications may be dictated based on potential side e ects in the patient, especially if they are at risk for cardiovascular problems or high chance of pregnancy. e decision between methadone and Suboxone must be carefully weighed based on the side e ect pro le and patient's pregnancy status [13,16].

Cost

Accessibility should also be considered when comparing the two medications. e cost of both methadone and Suboxone is quite substantial and may be the deciding factor for treatment choice based on the patient's nancial situation. e price of Suboxone o en varies depending on pharmacy, insurance and dosage but typically the tablet form of medication ranges from approximately $430 to $640 for 60 tablets, which in most patients is about a month's supply [17]. e cost of providing methadone is approximately $42-$166 per week with an average of $91. e average cost per year is typically $5250 if the patient remains in consistent treatment. e cost and accessibility of these medications can make them di cult for patients to obtain. For these reasons it is very important for the provider and patient to discuss the patient's best option and provide any resources to help obtain the medications. Methadone is typically less expensive than Suboxone and this may be the deciding factor when the physician is trying to choose between methadone and Suboxone for patients [18].

Long term success

ere are many studies that have examined the long term e ects and success of methadone since it has been used for many years for treatment of addiction. ere are some studies on Suboxone but signi cantly fewer than on methadone due to its more recent use in addiction. As of now, there are not many studies that compare the long term use of Suboxone or methadone directly [12]. However, a systematic review by Mattick, Breen, Kimber, and Davoli [13] did compare several aspects of methadone and Suboxone based on self-report and statistics. Criminal activity is o en associated with the use of heroin and the review examined the rates of crime in areas with more Suboxone and methadone treatment. e review showed that there were no di erences in the reduction of criminal activity or heroin use by self-report when comparing the e ectiveness of Suboxone and methadone in regards to these areas.

One of the most important aspects of opiate addiction treatment is the ability to retain patients in the treatment program long enough to create a successful outcome. Since methadone has been in use signi cantly longer, there are many more studies in regards to its treatment retention rates over those of Suboxone. Retention rates in the rst year of methadone treatment are typically 70-80%, compared to 56.9-90% for the rst year of Suboxone treatment. All studies examined for methadone outcome success found a signi cant reduction in illicit drug use, risky behaviors, and health problems. However, one study found that there was a signi cant reduction in the percentage of opioid found on urine drug screens of patients receiving Suboxone therapy over those receiving methadone. ese studies all show that both methadone and Suboxone are e ective treatment modalities for opiate addiction, however the choice between the two depends on many factors, including patient's health status, cost, and availability [19,20].

Conclusion

Opiate addiction is a serious and growing worldwide problem. Due to the vast impact of opiate addiction, all medical professionals need to be familiar with e ective treatment options. It is important to identify and utilize the most e ective treatment options to prevent opiate overdoses and reduce the addiction rates. e two most common medication choices for this treatment are Suboxone and methadone.

Much research has been conducted on these medications and both have