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INSOMNIA IN JAIL INMATES: A STUDY FROM THE SUB HIMALAYAN REGION OF NORTH INDIA.

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Abstract

Introduction: Insomnia has been defined as having difficulty in initiating or maintaining sleep, or experiencing early morning awakenings, with resultant daytime impairment.[1,2,3] Insomnia is a serious condition that affects over 60% of the prison population and has been associated with aggression, anger, impulsivity, suicidality, and increased prison health care use. [4] Hence management of insomnia in jail inmates become important. Benzodiazepines are commonly prescribed medications for insomnia.

According to the FDA, fast-onset, short acting benzodiazepines should not be prescribed for more than five consecutive weeks, to avoid the risk of dependency. Though in reality, they are commonly used for longer durations which can lead to complications.[5]

Mirtazapine is an antidepressant drug with US Food and Drug Administration approval for the management of major depressive disorder. At lower doses mirtazapine is often used for management of insomnia.

Methods: This study consisted of a sample of 40 jail inmates who were on benzodiazepine for insomnia. Benzodiazepine was cross tapered with mirtazapine. Insomnia was studied using daily sleep diary which was assessed weekly.

Results: The study identified that mirtazapine at lower dose can be used for long term management of insomnia.

Discussion: In long term management of insomnia not only medications but sleep hygiene, regular exercise and education regarding the effects of long term use of sedatives should be included as is done in general population.

Keywords: jail inmates, insomnia, mirtazapine, benzodiazepine.

Introduction

Tackling insomnia in prison inmates has unique challenges. Though, the treatment provided for insomnia to general population or prison inmates should not vary but the prescription of medication for insomnia is particularly challenging due to its addictive nature in population which has significant levels of substance use disorder. Prisoners commonly present with symptoms of insomnia to healthcare staff. Benzodiazepines are commonly prescribed medications for insomnia. Many negative effects of benzodiazepines such as misuse, dependence, impaired cognition effect many patients. While physicians prescribe these medications readily because of their high level of effectiveness, this practice can pose a risk to certain population .[5]

Another problem that is common to benzodiazepine is tolerance due to prolonged exposure. Tolerance is defined as "a need for markedly increased amounts of the substance to achieve the clinical effect, or markedly diminished effect with continued use of the same amount of the substance." The patient who use benzodiazepines for sleep, tolerance is known to develop quickly.[5] Dependency can occur in short span of time from days to weeks. Many patients who use benzodiazepines to induce sleep tend to gradually increase their doses on their own and at times beyond recommended levels. Patients may pressurize their doctors to increase the dosage in their prescriptions. Therefore, to overcome this problem it was planned to look for a safer alternative.

Mirtazapine is a therapeutic agent that was approved initially by US Food and Drug Administration [6] for treatment of major depressive disorder in 1996.Thereafter, it has been used off-label in treatment of other disorders, like insomnia, generalized anxiety disorder, and posttraumatic stress disorder .[7,8] The mechanism of action of mirtazapine is distinct. It exerts its therapeutic effect via increase in serotonin, norepinephrine, and dopamine levels, although not via the blockade of reuptake transporters.[7,8] Mirtazapine has highest affinity for histaminergic H_1 receptors and serotonergic $5HT_{2A}$ receptors.[9] Blockade of H_1 receptor provides additional sedating and anxiolytic properties, whereas blockade of $5HT_{2A}$ receptors provides increased dopaminergic activity.[10,11]

In the clinical setting, it is assumed that such properties result in sedation at lower doses and less sedation at higher doses. Hence mirtazapine at lower doses has high affinity for the histamine-1 receptor.[12]The histaminic and serotonergic effects together contribute to increased sedation. However, this effect is dose dependent. As at

lower dose mirtazapine has a higher affinity to histamine receptors as compared to serotonergic receptors. Resulting in increased sedation at lower doses of mirtazapine.[13] At higher doses, the antihistamine activity is decreased by increased noradrenergic transmission, which reduces its sedating effect.[14,15]

Objectives

The goal of the current study was to determine whether a safer, non-addiction causing, long term management of insomnia in jail inmates was possible.

Methods

A total of 40 male patients (aged 25–75 years) who were previously on benzodiazepine with the dose range of 0.25 mg to 2 mg daily with a variable duration of treatment between 3 months to 1 year, were included in the study. These patients were assessed on Mini International Neuropsychiatric interview instrument to rule out psychiatric disorder. The patients with psychiatric and SUD were excluded (n =7). Those unwilling to participate in study were excluded (n=3). Those not willing to maintain a sleep diary were excluded (n=1). Principles of sleep hygiene were explained along with a regular 45 minutes of exercise was advised. Gradually, benzodiazepines were tapered over 1 to 3 months' time. Patients were started on mirtazapine 7.5 mg. In three months mirtazapine was discontinued in (n=2) because of poor response in (n=1) and impaired glucose tolerance in (n=1). Some patients (n = 9) stopped treatment after 3 months with complete resolution of Insomnia. Rest of the patients (n= 18) are on regular treatment and have symptom control over 12 months. All the patients were monitored three monthly for weight gain, fasting blood sugar and lipid profile.

Discussion

Treatment of insomnia in jail inmates is challenging because apart from the jail routine that includes approximately 12 hours of dormitory time, no control over the physical environment and uncomfortable furnishings. The other stressors like ongoing judicial proceedings, concern regarding family welfare and adjustment with other jail inmates also contribute significantly to disturbed sleep. In long term, the management of insomnia will not only include medications but sleep hygiene, regular exercise and education regarding the effects of long term use of sedatives.

There are significant gaps in the literature pertaining to insomnia in jail inmates and further studies in this field can help decrease burden and improve outcome of insomnia in this special population.

Conclusion

This study has identified that insomnia in jail inmates is more challenging to manage as compared to general population because of lack of autonomy and control over environment. Other stressors too, significantly contribute to maintaining the problem resulting in the need for long term use of medications to manage insomnia in jail inmates. Due to addictive nature of benzodiazepines and need for long term use of medications, a non-addicting medicine in a selected population can help. The purpose of current study was to decrease the use of dependence causing medications in long term. Poor sleep hygiene, maladaptive beliefs regarding sleep and the non-conducive prison environment are responsible to maintain symptoms of insomnia in prisoners requiring longer treatment. Future research is needed to validate these findings on a larger-scale and using of objective measures for sleep.

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