Dokkyo Medical Journal
2(1): 77-80, 2023

Case Report

A Case of Successful Electroconvulsive Therapy on the Use of Sansoninto as Substitute for Benzodiazepine Hypnotics

Masato Kono, Norio Yasui-Furukori, Taro Sasaki, Masataka Shinozaki, Kazutaka Shimoda

Department of Psychiatry, Dokkyo Medical University School of Medicine, Tochigi, Japan

Summary

There is no information on the use of herbal medicines as substitute for benzodiazepine hypnotics in electroconvulsive therapy. A 50-year-old woman was admitted to our department due to worsening depressive symptoms. To perform electroconvulsive therapy, we reduced the dose of the benzodiazepine hypnotic flunitrazepam and initiated 7.5 g of sansoninto, followed by the discontinuation of flunitrazepam. A remission of symptoms was observed after 5 sessions of electroconvulsive therapy, which yielded effective convulsions. Since it is often difficult to reduce or discontinue benzodiazepine hypnotics, sansoninto can be considered an alternative insomnia treatment when electroconvulsive therapy is performed.

Key Words: Sansoninto, Benzodiazepine, ECT, Hypnotics

Background

Electroconvulsive therapy is often used for the treatment of severe psychiatric disorders and is extremely effective in improving depressive symptoms, especially in patients with bipolar disorder[1]. Bipolar disorder is frequently associated with insomnia, which is usually treated with benzodiazepine hypnotics[2]. In fact, benzodiazepine hypnotics are prescribed to 60% of patients with bipolar disorder[3]. In addition to their hypnotic effects, benzodiazepines have a variety of other clinical effects, including muscle relaxant, anxiolytic, and anticonvulsant effects[4]. Consequently, benzodiazepines should be discontinued prior to electroconvulsive therapy because they increase the convulsive threshold[5]. However, it is often difficult to reduce or discontinue benzodiazepine hypnotics without exacerbating insomnia. There is no information on the use of herbal medicines as substitute for benzodiazepine hypnotics in electroconvulsive therapy. In this report, we describe the case of a patient with bipolar disorder in whom insomnia improved and benzodiazepine hypnotics were discontinued after starting sansoninto, a drug usually used to treat people who are mentally and physically tired, weak, and unable to sleep, before electroconvulsive therapy.

Case Report

A 50-year-old woman was admitted to the Department of Psychiatry, Dokkyo Medical University because of worsening depressive symptoms due to failure to find a job and the death of her father. She complained of a depressed mood, suicidal ideation, insomnia, and weight loss of 8 kg. She had been treated with

Received August 3, 2022; accepted August 13, 2022; advance publication by J-STAGE June 22, 2023
https://doi.org/10.51040/dkmj.2022-042
Reprint requests to: Norio Yasui-Furukori
furukori@dokkyomed.ac.jp
Department of Psychiatry, Dokkyo Medical University, School of Medicine, Mibu, Shimotsuga, Tochigi 321-0293, Japan

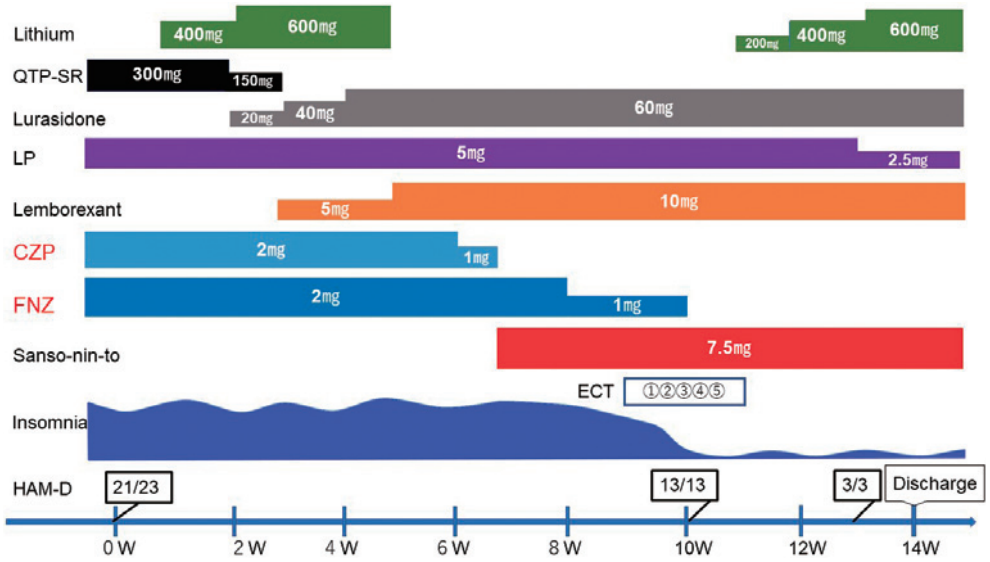

Figure 1 Clinical course of the patient. Drugs in red indicate benzodiazepine agents.
Abbreviations
QTP-SR; quetiapine-slow release, LP; levomepromazine, CZP; clonazepam, FNZ; flunitrazepam

milnacipran for depressive mood and pain at the department of psychosomatic medicine since her mid-30s. Five years ago, she was diagnosed with major depressive disorder by a psychiatrist after experiencing a depressive mood and suicidal ideation, from which time she was treated with venlafaxine and mirtazapine as an outpatient. Four years ago, she began to dress flamboyantly, be hyperactive, spend money frivolously, and overeat, and she also had suicidal ideations and a decreased desire to sleep, which led to the diagnosis of bipolar disorder. Two years ago, she was admitted to the hospital because she complained of fearful feelings of a dreadful death. After the eighth session of electroconvulsive therapy, the patient's mental state appeared to improve, and she was discharged from the hospital after the ninth session.

The patient had multiple gastric polyps, reflux esophagitis, and fibromyalgia as comorbidities. She was 157.0 cm tall and weighed 43.35 kg with a BMI of 17.59. Blood tests revealed normal liver and kidney function parameters. There were no biochemical abnormalities, such as electrolytes levels or blood counts. Thyroid function was normal, HbA1c was 5.7%, the lithium carbonate blood level was 0.65 mEq/L, and chest and abdominal X-rays showed no abnormal findings. On ECG, her HR was 53 bpm, and she showed sinus rhythm, with a QTc of 0.404 sec, all of which were normal. On admission, the patient was receiving lithium carbonate 600 mg/day, quetiapine slow-release tablets 300 mg/day, levomepromazine 5 mg/day, and flunitrazepam 2 mg/day. The benzodiazepine hypnotic zolpidem 10 mg was prescribed as a prophylactic against insomnia. For fibromyalgia, benzodiazepine clonazepam 2 mg/day and neurotropin 16 units/day were prescribed. After admission, the main drug was changed to lurasidone 20 mg/day, which was then increased to 80 mg/day (Figure 1). The dose of lithium carbonate was increased, but her depressive symptoms did not abate, and it was decided to administer electroconvulsive therapy. However, since electroconvulsive therapy was planned, benzodiazepine hypnotics were not added, and lemborexant was started in the third week of admission. Nevertheless, insomnia did not improve thereafter. From the 7th week, we prescribed 7.5 g of sansoninto, and approximately a week later, the patient's sleep evaluation showed improvement. The number of times she used prophylactic medication decreased, although multiple awakenings persisted. Prior to the implementation of electroconvulsive therapy, we considered it necessary to reduce the dose of the benzodiazepine hypnotic flunitrazepam, and from week 8, the dose was reduced to 1 mg, but no deterioration of sleep status was observed. From the 9th week, electroconvulsive therapy was started in

parallel with sansoninto medication. After the second electroconvulsive therapy session, the patient's sleep state improved significantly, and prophylactic medication was no longer used. In the 10th week, flunitrazepam was discontinued, but no deterioration of sleep state was observed. At week 11, one course of electroconvulsive therapy (the fifth session) was completed, and at this stage, improvements in depressed mood and suicidal ideations were observed. The HAM-D score at week 13 improved to 3 (remission), and the patient was discharged at week 14. After discharge, the patient remained stable with just sansoninto without a reintroduction of benzodiazepines.

Discussion

This is a case of a patient with bipolar depression and severe insomnia who was successfully treated with electroconvulsive therapy by replacing benzodiazepine hypnotics with sansoninto. When performing electroconvulsive therapy, anticonvulsant drugs must be discontinued to obtain effective convulsions. However, benzodiazepines are highly addictive and cannot be easily discontinued. As far as we know, this is a novel use of sansoninto as a replacement of benzodiazepine hypnotics for electroconvulsive therapy. Sansoninto can be considered an alternative insomnia treatment when electroconvulsive therapy is performed.

There is evidence that it is effective in treating insomnia in Parkinson's disease[6], dementia in elderly individuals[7], sleepwalking[8], insomnia associated with developmental disorders[9], as well as in weaning patients from benzodiazepine hypnotics[10]. While benzodiazepines act on GABAA receptors and lead to sleep, it has been postulated that sansoninto acts on serotonin 1A receptors[11] as well as GABAA receptors[12], although the mechanism of action of sansoninto has not yet been clarified. These two mechanisms have been theorized to exert hypnotic effects and increase non-REM sleep[13].

In addition to the electroconvulsive therapy problem discussed in this case, benzodiazepine hypnotics have been noted to be associated with medical safety issues such as falls and delirium due to their muscle relaxant effects. Therefore, the use of sansoninto may offer an alternative to the above problems.

Conflict of interest

The authors declare that they have no competing interests.

References

1) Versiani M, Cheniaux E, Landeira-Fernandez J: Efficacy and safety of electroconvulsive therapy in the treatment of bipolar disorder: a systematic review. J ECT **27**: 153-164, 2011.
2) Harvey AG, Soehner AM, Kaplan KA, et al.: Treating insomnia improves mood state, sleep, and functioning in bipolar disorder: a pilot randomized controlled trial. J Consult Clin Psychol **83**: 564-577, 2015.
3) Tsuboi T, Suzuki T, Azekawa T, et al.: Factors Associated with Non-Remission in Bipolar Disorder: The Multicenter Treatment Survey for Bipolar Disorder in Psychiatric Outpatient Clinics (MUSUBI). Neuropsychiatr Dis Treat **16**: 881-890, 2020.
4) Cook L, Sepinwall J: Behavioral analysis of the effects and mechanisms of action of benzodiazepines. Adv Biochem Psychopharmacol **14**: 1-28, 1975.
5) Schweder LJ, Wahlund B, Bergsholm P, et al.: Questionnaire study about the practice of electroconvulsive therapy in Norway. J ECT **27**: 296-299, 2011.
6) Nakae H, Kusakabe M, Kosuge T: A case of insomnia in a patient with Parkinson's disease successfully treated with sansoninto. Japanese Journal of Oriental Psychosomatic Medicine **32**: 101-104, 2017 (In Japanese).
7) Iwasaki K, Nagao M, Moriyama H, et al.: Mechanism of action of herbal medicines prescribed for insomnia. Progress in Medicine **38**: 13-19, 2018 (In Japanese).
8) Takehara H, Matsukawa Y, Tanaka Y, et al.: Two cases of effective Chinese herbal treatment for sleep disorders associated with developmental disorders. Japan Journal of Oriental Medicine **69**: 246-251, 2018 (In Japanese).
9) Shoyama M, Mukai M, Ushiroyama T: A case of somnambulism successfully treated with sansoninto. Kampo Med **67**: 61-66, 2016 (In Japanese).
10) Ozaki T: A case of complete withdrawal from sleeping pills with the use of sansoninto. Journal of the Japanese Ryodoraku Autonomic Nervous System Society **42**: 156-167, 1997 (In Japanese).
11) Moriyama H, Watanabe T, Takasaki K, et al.: Ameliorative effect of sansoninto on sleep disturbance and spatial memory impairment in an Alzheimer's disease rat model. Traditional & Kampo Medicine **4**: 38-45,

2017.
12) Ko SY, Lee HE, Park SJ, et al.: Spinosin, a C-Glucosylflavone, from Zizyphus jujuba var. spinosa Ameliorates Aβ1-42 Oligomer-Induced Memory Impairment in Mice. Biomol Ther **23**: 156-164, 2015.
13) Yi PL, Tsai CH, Chen YC, et al.: Gamma-aminobutyric acid (GABA) receptor mediates suanzaorentang, a traditional Chinese herb remedy, -induced sleep alteration. J Biomed Sci **14**: 285-297, 2007.