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Successful Rapid Benzodiazepine Detoxification in an Acute Care Hospital: A Case Report

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CASE REPORT

Successful Rapid Benzodiazepine Detoxification in an Acute Care Hospital: A Case Report

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Abstract

Introduction: **Benzodiazepine (BZD) dependence and withdrawal are significant public health concerns, affecting 15–30% of regular users within 4–6 weeks of administration. Rapid BZD tapering protocols in acute care settings can mitigate withdrawal symptoms and facilitate rehabilitation, yet are challenging due to variability in patient responses.**

Case presentation: **We report a case of a 67-year-old male with a history of high-dose BZD use for panic disorder and depression and recent mild ischemic stroke, presenting with worsening left lower limb paralysis. The patient's complex medication regimen included multiple BZDs and other psychotropic drugs. Given the risks associated with high-dose BZD use, particularly in the context of stroke rehabilitation, a rapid detoxification protocol was initiated, aiming to reduce BZD dosage by 25% every 4 days. This approach led to successful detoxification within 2 weeks without significant withdrawal symptoms, facilitating stroke rehabilitation and improving prognosis.**

Discussion: **This case highlights the effectiveness of a collaborative, rapid BZD tapering approach in an acute care setting, emphasizing the importance of patient cooperation, interdisciplinary communication, and careful monitoring of withdrawal symptoms. The case also underscores the potential benefits of replacing short-acting BZDs with long-acting ones, such as diazepam, to minimize withdrawal symptoms and support rehabilitation processes.**

Conclusion: **Rapid BZD detoxification is feasible and can be safely achieved within a short-term hospital stay, demonstrating significant benefits for patients with BZD dependence. This case contributes to the evolving strategies for managing BZD dependence in acute care settings, advocating for tailored, patient-centered approaches to detoxification.**

Keywords: Benzodiazepine dependency, Rapid drug tapering, Acute care hospital, Etizolam

1. Introduction

Benzodiazepine (BZD) dependence and withdrawal, which can occur within 4–6 weeks of BZD administration, develops in 15–30% of individuals who regularly use BZDs.[1] BZD dependence is an important public health issue as long-term use of BZDs has been reported in 3% of the general population.[2] BZDs can cause physical and mental dependence even at low doses, resulting in duplicate prescriptions and doctor shopping behaviors.[2] The risk factors for BZD dependence include prescriptions by psychiatrists; regular, high-dose, and concurrent prescriptions of psychotropic drugs; and increased age.[2] Sudden cessation following dependence can result in withdrawal symptoms within 2–3 and 5–10 days for short- and long-acting BZDs, respectively.[2] Withdrawal symptoms include psychological (anxiety, restlessness, irritability, and confusion), autonomic (tremors, sweating, high blood pressure, and tachycardia), and neurological and physical (seizures, sensory anomalies or hypersensitivity, and cognitive dysfunction) complications.[1,2]

Several treatment modalities have been proposed to mitigate withdrawal symptoms, including replacing BZDs with diazepam (DZP) or calculating the BZD potency and reducing it by 50% every week or by 10–25% every two weeks.[2] The World Health Organization and United Kingdom clinical guidelines, recommend using DZP as a replacement to BZDs, with gradual discontinuation over a period of

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several weeks to prevent withdrawal symptoms.[3,4] In addition to the protracted time required for BZD detoxification, predicting individual response to a fixed-dose tapering protocol is challenging.[1] The protracted period and unpredictability of outcome makes providing treatment for BZD dependence in acute care hospital setting, where short-term hospitalization is expected, challenging. Thus, rapid BZD tapering protocols would help achieve BZD detoxification in acute hospital.

Different rapid BZD detoxification protocols have been reported, including a 2-week protocol in which high-dose alprazolam is replaced by chlordiazepoxide, with a 10% dose reduction per day[5] and discontinuation of a 40 mg/day equivalent DZP dose over a 10-day period.[6] However, long-acting BZD administration during the day, including a dose after breakfast, can lead to daytime sleepiness and risk of falling.[5,6] As the action time of DZP is long,[1,3] rapid tapering can be achieved using a once-daily dose of DZP administered at night. Herein, we describe a rapid protocol to achieve BZD detoxification in a patient with a history of long-term use of a large amount of BZD who was admitted to our acute care hospital setting for mild ischemic stroke management. BZD detoxification aimed to mitigate the risk of falling, facilitate stroke rehabilitation, and improve prognosis. BZD detoxification was achieved within a period of 2 weeks.

2. Case presentation

A 67-year-old male with a long history of high-dose BZD use for panic disorder and depression who had developed a mild left hemiparesis three days prior sought medical attention at our outpatient emergency department for worsening paralysis of his left lower limb. Relevant medical history included hypertension, hyperuricemia, 30 pack-year smoking history, and history of 12 units of alcohol consumption per day. The patient had no history of illicit drug use and alcohol dependency.

Neurological examination revealed mild left hemiparesis, combined with dysarthria and sensory disturbances on the left side. Magnetic resonance imaging revealed a lesion located approximately 10 mm from the left thalamus toward the posterior limb of the internal capsule causing a signal change. Mild ischemic stroke was diagnosed, with a National Institutes of Health Stroke Scale (NIHSS) score of 5. The patient was admitted on an urgent basis and dual antiplatelet therapy was initiated.

The use of 15 different drugs were identified upon reviewing his medication regimen: zolpidem (10 mg vds), etizolam (3 mg vds), lorazepam (0.5 mg 3T/d vds), trazodone (100 mg), levomepromazine (5 mg), aripiprazole (3 mg), lemborexant (5 mg), escitalopram (10 mg), and amitriptyline (60 mg). After a telephonic discussion among the attending physician, the ward pharmacist, and the patient's regular psychiatrist, the patient was advised that treatment for Etizolam dependence was recommended, considering the increased risk of falls and the detrimental impact on stroke rehabilitation. Gradual reduction in the medication dose was recommended, which the patient agreed to. Concerns about insomnia during the period of dose tapering were addressed, with the decision made to maintain the dose of zolpidem while tapering the dose of other BDZs: etizolam 3 mg vds and lorazepam 0.5 mg 3T/1 vds, equivalent to 25 mg/d of DZP. Considering the patient's request for an early discharge, combined with our goal to mitigate adverse effects of high-dose BZDs during rehabilitation, rapid BZD detoxification was planned. Based on the recommendation by the psychiatrist, the combination of serotonin reuptake inhibitors (SSRIs) and tricyclic antidepressants (TCAs) was adjusted to SSRI monotherapy, combined with lorazepam (1.5 mg) and etizolam (3 mg, equivalent to 25 mg DZP). On day 5 post-admission, etizolam was switched to DZP (16 mg), with the dose reduced to 8 mg on day 9 and complete cessation on day 13. The patient experienced insomnia, requiring an additional dose of trazodone. No re-emergence of withdrawal symptoms, such as sweating, tremors, or hyperesthesia, was observed. Rehabilitation for ischemic stroke progressed to completion, with nearly complete resolution of the hemiparesis (with only mild unsteadiness while walking). Regular BDZs were discontinued on day 18 post-admission, with the number of medications reduced from 15 to 11. Physical function improved, with an NIHSS of 0 and Modified Rankin Scale score of 1. The patient was discharged and continued to receive follow-up treatment at his primary care clinics and psychiatry.

3. Discussion

Our case report underlines the possibility of successful short-term BZD detoxification using an collaborative approach. Our patient was a 67-year-old male with a history of high-dose BZD use for panic disorder and depression. The patient required rehabilitation for left-sided mild hemiparesis attributed to ischemic stroke, for which BZD detoxification was recommended. The BZD detoxification regimen consisted of tapering of the BZD dose by 25% every 4 days, which was achieved without prominent withdrawal symptoms, such as headache, sweating, tremors, and agitation. The tapering process was

successfully completed during an acute hospital admission period, with only insomnia as a withdrawal symptom, and a parallel polypharmacy intervention was also successful.

Hospital settings offer a safe transition of care, with the ability to easily respond to adverse events, providing an ideal context for interventions to manage issues of polypharmacy and inappropriate long-term medication use.[7,8] BZD dependency treatment requires several weeks;[1,2] thus, its implementation in acute care hospital settings is challenging. Our case report demonstrates the feasibility of short-term BZD detoxification in an acute care hospital setting. However, the medication dose to be tapered was less than 30 mg in DZP equivalent units, which is a predictor of successful outcomes.[2] Moreover, patient cooperation, understanding by the department's nursing staff, and coordination and follow-up requests with the primary psychiatrist were crucial for successful outcomes in our case.

Rapid detoxification has been reported previously; however, medication was administered during daytime hours, including morning hours. Closser et al.[5] reported the replacement of six high-dose alprazolam use by chlordiazepoxide and tapering by 10% each day for 9–15 days; chlordiazepoxide was administered three or four times a day, resulting in withdrawal symptoms, including tachycardia and agitation in half and third of patients, respectively. Fournier et al.[6] reported a case of BZD-dependence in a 16-year-old patient, equivalent to a 40 mg/day DZP dose, which was tapered over 10 days; DZP was administered in the morning for the first 8 of 10 days. In our case, we administered DZP only at bedtime to minimize adverse medication effects on stroke rehabilitation, while avoiding daytime BZD intake.

Although strong evidence supporting BZD withdrawal improvement following a change from short- to long-acting drugs is lacking, an association between the use of short-acting drugs and earlier onset of withdrawal symptoms resulting in a higher dropout rate has been reported. Accordingly, long-acting drugs, especially DZP, are often used to treat BZD dependence.[2,9] DZP has a relatively long half-life; thus, it can be prescribed once daily, in tablet or liquid form, with dose adjustment according to the withdrawal symptoms.[1,3] Converting all BZD dosages to DZP equivalent units is an accepted practice and is particularly effective for treating short-acting BZD dependence.[3]

Special attention was paid to etizolam use and dose in our case. Etizolam, which is a BZD with a short-half-life, is mainly used in Japan. Even at clinical doses, etizolam can easily cause dependence, with difficulty achieving successful withdrawal.[10,11] BZD withdrawal symptoms occur within 2–3 days for BZDs with a short half-life.[1,2] We tapered BZD dosage at a 4-day interval considering both the need for rapid tapering and attending to symptoms of withdrawal from short-acting BZDs. Our protocol of reducing BZD dosage by 25% every four days achieved a rapid BZD detoxification within 2 weeks, which is consistent with prior literature.[5,6]

4. Conclusion

Our case indicates the feasibility of achieving rapid BZD detoxification within 12 days by reducing the BZD dosage by 25% every 4 days in a patient who had developed dependence on a high-dose of prescribed BZDs.

Statement of ethics

Written informed consent was obtained from the patient for publication of this case report.

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Data availability statement

All data generated or analyzed during this study are included in this article.

Conflicts of interest

No potential conflict of interest was reported by the authors.

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