

# Self-harm and suicide associated with benzodiazepine usage

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## ABSTRACT

Benzodiazepines are commonly prescribed in primary care for anxiety disorders and insomnia. However, they can cause dependence with withdrawal symptoms that are both physical and psychological. These complications are also more common with short-acting benzodiazepines such as lorazepam. This case report describes a previously stable 62-year-old male who inflicted serious stab wounds to himself, twice within a month, during changes in his benzodiazepine regime.

## INTRODUCTION

In 2002, 12.7 million prescriptions for benzodiazepines were completed by primary care trusts, mainly for the treatment of anxiety disorders and insomnia.<sup>1</sup> While they can be beneficial, withdrawal symptoms can occur after 4–6 weeks of continuous use and at least a third of long-term users experience these on dosage reduction.<sup>2</sup>

Withdrawal symptoms can be described in both physical (paraesthesia and visual disturbances) and psychological (anxiety, insomnia, and depersonalisation) terms.<sup>3</sup> These are also reported to be more common with short-acting benzodiazepines such as lorazepam, compared to the longer acting diazepam.<sup>2</sup>

This case report describes a previously stable 62-year-old man who inflicted serious stab wounds to himself, twice within one month, during changes in his benzodiazepine regime.

## CASE HISTORY

Initially, the patient presented to a locum GP complaining of anxiety and low mood for 1 year since his wife of 35 years had been diagnosed with cancer. Despite her successful response to treatment, his symptoms continued and he recalled requesting something to 'pick me up'. Apart from eye drops, he did not take any other medication and rarely consumed alcohol. There was also no previous history of psychiatric illness or episodes of self-harm and his premorbid personality was described as a 'robust character', who had always been employed.

He was prescribed lorazepam (1 mg in the morning and 0.5 mg in the evening, increasing after 2 weeks to 1 mg twice daily) and received two further repeat monthly prescriptions. On review by his regular GP, lorazepam was discontinued and an antidepressant, fluoxetine (20 mg once daily), prescribed. Treatment with fluoxetine was discontinued 3 weeks later when the patient presented to the accident and emergency department with an episode of panic. Another benzodiazepine, alprazolam (dosage and frequency unknown), was prescribed. The patient attended follow-up counselling with a member of his community mental health team and was prescribed lorazepam and temazepam by his GP. Unknown to health services at this time, the family obtained alprazolam through the internet and he later reported taking up to 6 mg of lorazepam per day. Two days before the first episode of self-harm, the patient accompanied his wife to a routine oncology follow-up appointment. As he expressed difficulty coping, he was referred to the psychiatrist on call at a different accident and emergency department. Benzodiazepine dependence syndrome was diagnosed and diazepam (2 mg in the morning and 5 mg at night) prescribed, as its longer acting nature would allow more gradual tapering of its dose. Zopiclone (7.5 mg at night) was also prescribed although the patient did not understand that it was to be taken concurrently.

Within 36 hours the patient became agitated and complained of somatic sensations in his head. Despite repeated reassurance from his wife, he remained fearful of an underlying pathology and

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separation from her. He subsequently stabbed himself twice in the abdomen, requiring an emergency laparotomy and jejunal resection.

During his recovery the patient reported ongoing somatic symptoms and feelings of anxiety. On review by liaison psychiatry his anxiety responded partially to reassurance, while his mood was euthymic and not depressed. The patient denied ideas of self-harm and expressed regret for his impulsive act. No abnormalities in his cognition were revealed on mini-mental state examination and a CT brain scan was reported as normal.

The patient's symptoms were attributed to ongoing benzodiazepine withdrawal and through titration of 2 mg doses of diazepam, he was stabilised on a regime of 10 mg per day. He was discharged home for weekly follow up by medical and nursing staff from his community mental health team.

In response to the patient's request to stop benzodiazepines, a reducing strategy was agreed. However, his compliance was erratic and 3 weeks later while unable to sleep, he inflicted serious stab wounds to his neck and chest. The patient was admitted to intensive care for 10 days and transferred to psychiatric care for an additional 3 weeks.

## DISCUSSION

Two recent studies have examined the role of benzodiazepines on actual or attempted suicide. A study examining elderly suicides in Sweden found that between 1992 and 1996, benzodiazepine hypnotics dominated drug-poisoning suicides (216 of 548, 39%) in those aged over 65 years.<sup>4</sup> During the same time frame, a population-based cohort study in Canada found a significant association between suicide attempts and benzodiazepine usage (odds ratio = 6.2). While disinhibition and paradoxical reactions inducing suicidal impulses were considered, the authors believed that confounding by the original indication was a more likely explanation.<sup>5</sup> Neither study reported withdrawal symptoms as a factor, although both advised examining for depression and restrictive prescribing for groups at risk of suicide.

In this patient's presentation, factors regarding both the properties of benzodiazepines and monitoring his response appear relevant. Although benzodiazepine dependence syndrome was correctly diagnosed, the extent of his usage was not fully appreciated. This is particularly important when changing from a short-acting benzodiazepine to those with a longer half-life, as the equivalent dose for 1 mg of lorazepam is 10 mg of diazepam.<sup>2</sup> This patient's reduction in dosage, from the

equivalent of up to 60 mg of diazepam to 7 mg per day, is likely to have precipitated an acute withdrawal syndrome, which is consistent with the symptoms he reported prior to his first act of self-harm. Similarly, the second act occurred while on a reducing dose of diazepam with poor compliance.

Benzodiazepine-associated paradoxical disinhibition, an uncommon but recognised phenomenon characterised by acute excitement and an altered mental state, is an additional consideration. Benzodiazepines exert their effects via potentiation of the inhibitory neurotransmitter  $\gamma$ -aminobutyric acid (GABA) in the central nervous system. While the mechanism of paradoxical disinhibition is poorly understood, the most widely accepted explanation is that they occur secondary to inhibition of the restraining influences of the cortex and frontal lobe.<sup>6</sup> In the general population such reactions have been reported to occur in less than 1%,<sup>7</sup> although the incidence is greater among vulnerable groups.<sup>8</sup> In this case, a paradoxical disinhibition appears unlikely because, apart from when his equivalent dosage was reduced, there were no other reported incidents of agitation.

While the dramatic and potentially fatal consequences of this patient's acts of self harm appear to be rare in benzodiazepine withdrawal, prescribers should remain aware that dependence on benzodiazepines can develop quickly, particularly with short-acting agents. The case also emphasises the need for close liaison between secondary and primary services, particularly when changes in medication are advised.

## Consent

The patient has consented to the publication of this report.

## Competing interests

The authors have stated that there are none.

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