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Complete Resolution of Catatonia Following a Single Intravenous Lorazepam Challenge Test: An Early Intervention in Psychosis Case Report

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Introduction

Catatonia is defined as a 'syndrome of primarily psychomotor disturbances, characterized by the co-occurrence of several symptoms of decreased, increased, or abnormal psychomotor activity'.[1] It can be divided into two subtypes: features associated with decreased activity including immobility, staring (fixed gaze and decreased blinking), mutism (no or very little verbal response), rigidity, not eating or drinking and other such as waxy flexibility, ambitendency, and negativism; and features associated with increased activity (excitement) with severe psychomotor agitation including non-purposeful movement and or uncontrollable and extreme emotional responses.[1,2]

Catatonia can occur in a variety of conditions, including psychiatric such as mood and non-affective psychotic disorders, medical and neurological disorders, substance and medication related (drug intoxication and withdrawal) and neurodevelopmental and genetic disorders with special note in ICD-11 of Autistic spectrum disorder (ASD).[1–5] Complications of untreated catatonia can be life-threatening, including cardiac, thrombolytic, pulmonary and renal (dehydration and renal failure).[6,7]

Catatonia is a clinical diagnosis that can vary in presentation and is often underdiagnosed (in psychiatric and medical settings), with an overall mean prevalence of 9%.[8–10] In acute psychiatric inpatient settings, the prevalence has been reported to be 5–18%, and 12% in drug-naïve first episode psychosis patients, and little is

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known about the prevalence in emergency departments,[10] although it is likely that catatonia is under-recognised in general hospital settings.[11,12]

Catatonia rating scales may provide a useful adjunct to clinical examination and is based on observation. The Bush-Francis catatonia rating scale is one of the most widely used scales, and has a total of 23 items, with the first 14 items used as a screening tool (2 or more items present rated as a positive screen) and can also be used to measure severity and response to treatment.[13,14]

Pathophysiology underlying catatonia remains poorly understood, but thought to be related to, amongst other neuronal dysfunction, reduced gamma-aminobutyric acid (GABA) activity, specifically GABA-A receptors in the right lateral orbitofrontal and right posterior parietal cortex,[15] supported by the positive response to treatment with benzodiazepines (GABA-A receptor agonists) and ECT.[16]

Here we present a case of a patient with acute catatonia, unusual in its sustained response following a single intravenous benzodiazepine dose, with no clear underlying medical or psychiatric cause identified, and potential relation to stress.

Case Presentation

The patient is a 53-year-old Caucasian female who had been under the care of the early intervention for psychosis (EIP) service following a first episode psychosis. At the time of first presentation an incidental finding of a small meningioma was diagnosed through contrast MRI brain scan. The psychotic episode appeared unrelated to this following acute liaison psychiatric and neurology review and was thought to be stress-related at the time. There was no history of substance misuse, other significant medical illness or family psychiatric history. The patient had in recent months reported symptoms suggestive of being in the perimenopausal phase that include changes in menstrual cycle. Although not formally diagnosed, the patient also presented with possible features of autistic spectrum disorder. Following a first episode psychosis, the patient was briefly treated with aripiprazole (antipsychotic) up to a dose of 10 mg in the morning. The patient stopped medication 3 months later. She remained well and stable following medication cessation.

After 18 months under the care of the EIP service, the healthcare team was alerted of a sudden change in presentation with predominant confusion (reported to have been her usual self the previous day although report of a possible stressful incident at work earlier that week). The team attended the home address the same day (day 1). She presented with mutism, immobility (lying on her bed) and had not eaten or drunk any fluids for the duration of that day. The Bush-Francis

catatonia rating scale score was 14. She was taken to A&E the same evening and admitted to the general hospital.

The next day (day 2) she was reviewed by the EIP consultant psychiatrist and acute liaison consultant psychiatrist attached to the general hospital. She presented with immobility, mutism, staring (vacant perplexed appearance with gaze, and reduced blinking) and rigidity. Catatonia was diagnosed. The Bush-Francis catatonia rating scale score was 16. She was given a lorazepam 'challenge test' at the time of 2 mg intravenous lorazepam. Response was rapid, with change in eye contact, verbal response and some movement, however brief, followed shortly by the onset of sedation and falling asleep.

The next morning when she awoke (day 3), there was no evidence of catatonia. She presented with normal movement and eye contact, engaging, conversant and coherent. There was no evidence of acute psychiatric disturbance. Physical health investigations completed during the admission revealed nil significant, and neurological advice was sought from the neurosurgical specialist centre following brain imaging. Once all investigations had been completed, she was discharged home with a brief period of support from the psychiatric crisis and home treatment team for additional monitoring to ensure no development of early warning signs of psychosis.

Discussion

Benzodiazepines are the first choice of treatment for acute catatonia regardless of the underlying cause.[17] Lorazepam is the most commonly used benzodiazepine for the treatment of catatonia.[18] The lorazepam 'challenge test' has a two-pronged purpose of not only effectively treating the condition but also clinically providing support to clarify the diagnosis, and can be administered via oral, intramuscular or intravenous route.[18] Response to benzodiazepines is often described as 'rapid and dramatic', with doses ranging from 1–4 mg but also up to 16 mg per day.[18]

The dose of 2 mg lorazepam has been suggested as an optimal dose for the lorazepam 'challenge test' given the significant response to most catatonic features with this, ensuring accurate identification and reducing the risk of misinterpretation of response.[19] From the authors' clinical experience, the usual response to 2 mg intravenous lorazepam includes an initial rapid response, often followed by a relapse into catatonia (temporary response), necessitating further treatment, usually with oral (or intravenous) lorazepam, for a period time until the symptoms resolve. This is supported by the case reports where a response is often seen within 3 to 7 days although response can in some cases can

be slow and gradual, with recommendation to taper down when the catatonia has been adequately treated.[15,18] There is a lack of evidence of frequency of lorazepam administration and related outcomes.[20]

In this patient case, the response to a single dose of 2 mg intravenous lorazepam provided an initial brief response, followed by sedation and a period of sleep, after which there were no longer features of catatonia present. Therapeutic response appears most effective in acute catatonia, with longer duration of symptoms a predictor for poor response.[17,20–22] Here, the condition was identified and treated early (identified on day 1, and treated on day 2), which may have contributed to the outcome following a single dose of intravenous lorazepam. The relatively quick onset of sedation (that is often only later seen in the course of treatment) may be related to the dosage, where a lower dose (such as 1 mg) may have been sufficient for a positive response in this particular individual. A practical learning point may also be the way the test is done, such as when intravenous infusion of lorazepam is started, to consider pausing after 1 mg has been given and allow re-evaluation of catatonic features before proceeding with the full 2 mg dose unless the patient has fallen asleep or the response to 1 mg was not adequate.

The presence of what has been reported as an incidental finding of a meningioma during the patient's first presentation to health services, is thought to be unlikely to have contributed to the presentation of acute catatonia. A CT and MRI brain scan with contrast completed at the time of admission to the general hospital, found no change in lesion size and no mass or oedematous effect on surrounding structures. The lorazepam 'challenge test' not only confirms the diagnosis, but often will make the underlying pathology become more evident.[17] In this case, all physical health investigations found no specific underlying cause, and there was no evidence of an underlying acute psychotic or other psychiatric condition. Whilst there are no case reports of stress-induced catatonia to the authors' knowledge, acute stress may be associated with GABAergic neurotransmission receptor attenuation.[23] There are however case reports of catatonia in post-traumatic stress disorder with reference to Shorter and Fink (2018)[24] postulating that catatonia is associated with fear and alarm triggered by trauma, being an overwhelming psychic response, and a proposed link to the animal defence of tonic immobility in a predatory environment.[25,26] Psychogenic theories on vulnerability and overwhelming anxiety due to perceived trauma or danger may be more applicable in certain patient populations for example autistic spectrum disorder.[27] The presence of autistic spectrum disorder features (although not formally diagnosed), a previous stress-induced psychotic episode, and likely perimenopausal oestradiol fluctuation increasing sensitivity to psychosocial stress,[28]

all highlight the potential relevance of a stress-vulnerability model in this case, especially in the context of reported stress at work preceding the onset of catatonia.

Conclusion

Clinicians, both in medical and psychiatric settings need to be familiar with the symptoms of catatonia in order to be able to detect and effectively treat early, with less severe symptoms and early treatment related to better outcomes, and likely reduced need for more invasive treatment such as ECT.[29] Untreated catatonia is associated with significant morbidity and mortality. Rating scales such as the Buch-Francis Catatonic rating scale may be a helpful aid for diagnosis and determination of severity and evaluating response,[30] with the lorazepam 'challenge test' serving as both treatment and confirmation of diagnosis. Underlying physical and or psychiatric causes need to be identified and treated where present. ✤

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