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Case Report

The dilemma of using physical restraint in delirium tremens: a case report

Yogender Kumar Malik*, Debasish Basu, Chandrima Naskar

Department of Psychiatry, Postgraduate Institute of Medical Education and Research, Chandigarh (PGIMER), Chandigarh, India

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***Correspondence:**
Dr. Yogender Kumar Malik,
E-mail: yogendermalik187@gmail.com

ABSTRACT

Delirium tremens (DT) is a common presentation in tertiary care hospitals. Refractory DT, though not very common, is a dreaded presentation in any clinical setting. Usually, patients with DT respond to standard doses of benzodiazepines, but sometimes we encounter patients requiring higher than the usual dose. Also, due to the high level of agitation, confusion and hallucinatory behaviour, physical restraint is frequently used in these patients. We hereby report a case of refractory DT in whom the dilemma of using physical restraint and need for higher doses of Benzodiazepine has been highlighted.

Keywords: Chronic liver disease, Delirium tremens, Hyperthermia, Lorazepam, Mental healthcare act, Physical restraint

INTRODUCTION

Alcohol use disorders are a public health concern worldwide. DT is a severe form of alcohol withdrawal which is a medical emergency associated with high mortality of ~5-10 %, if not managed properly.[1] In clinical practice, we generally tend to use a combination of benzodiazepines, anti-epileptics, antipsychotics and high potency multivitamins along with supportive measures like maintenance of hydration, electrolytes balance, blood sugar etc.[2]

Alongside these measures patients frequently require some sort of physical restraint to prevent from injury, falls, or harm to self or others. In this case report we present the management of this life threatening condition in a way that offers some insight on the benefits and risks of using physical restraint in such patients.

CASE REPORT

A 38-year-old man presented in our clinic with alcohol use pattern suggestive of dependence since last 6 years. He was diagnosed with Chronic Liver Disease with Portal Hypertension and alcohol abstinence was advised, despite which he continued drinking with intermittent periods of abstinence, with history of one episode of alcohol withdrawal delirium in the past. Currently, he presented with symptoms of jaundice since 5-6 days and was advised medical help for stopping alcohol. He was started on Lorazepam assisted withdrawal, but due to poor adherence, started having withdrawal symptoms, characterized by coarse tremors, sweating, disorientation, agitation, irrelevant speech and hallucinatory behaviours by the third day of abstinence and he was brought back for review. He was admitted and relevant investigations were done which showed low Haemoglobin, low Calcium and deranged LFT (Table 1). The patient was rated on

*CIWA-Ar (Clinical Institute Withdrawal Assessment of Alcohol Scale, Revised) scale and a score of 18 was noted, and a diagnosis of Delirium Tremens was kept. He was started on intramuscular neurotropic vitamin combination and slow intravenous lorazepam 4 mg hourly, with CIWA and DRS- R98# (delirium rating scale revised) score monitoring. The dosage of Lorazepam, other medicine, events and monitoring parameter score over the period is shown in Table 2.

Table 1: Investigation Findings.

Investigation	Values	Investigation	Values
Hb	7.5 gm/dL (12-18)	INR	1.84 (<1.1)
TLC Platelets	6500 (4000-11000), 390000	USG (abdomen)	Chronic liver disease and cholelithiasis
S. Na+/K+	138/3.38 mmol/L (135-145/3.5-5.5)	Biphasic CECT Abdomen	Chronic liver parenchymal disease with portal hypertension, No arterial hyper vascular lesion in liver
Sr. calcium/Sr. Phosphate	7.4/1.3 mg/dl (8.8-10.2/2.7-4.5)		
Bilirubin (total)	10.6 mg/dL (0-1.0)	CA -125	17. 32 IU/ml (0-35)
Bilirubin (conj.)	8.8 mg/dL (0-0.3)	CA 19-9	0.695 (0 -27)
AST	256 U/L (2-40)	Viral markers	Non- reactive
ALT	152 U/L (2-41)	Ammonia	57.4 mmol/L (19-71)
ALP	10.4 (4 -11)	GGT	613 (7 – 400)
PT	19.5 sec (10-14)	S.Mg2+	2.0 mg/dL (1.46-2.68)
PTI	68 % (80 -100)	Protein/albumin	8.2/3.6
APTT	42.6 sec (27 – 34)	INR	1.42

Table 2: Specified medication doses, events and monitoring parameter score.

Days	Loarazepam	Other medication	Physical restrain	Events	*CIWA-Ar	DRS- R98#
Day 1	26 mg (i/v)	HPL 1.25 mg (i/v)	+	-	18	18
Day 2	32 mg (i/v)	HPL 2.5 mg (i/v)	+	hyperthermia	29	24
Day 3	16 mg (i/v)		+	hyperthermia	20	18
Day 4	10 mg (i/v)		-	Fever spikes	14	16
Day 5	8 mg (i/v)		-	-	6	8
Day 6	6 mg (oral)		-	-	0	0
Day 7	4 mg (oral)		-	-	0	0

He had to be physically restrained to prevent harm to self and family members. On examination, his body temperature was found to be 100° F, Pulse 140/min, B.P. 160/90 and RR was 20/min with coarse tremors present. However, he did not have any rigidity, excessive sweating and CK-NAC was not raised, thus ruling out NMS. He was shifted to emergency OPD and for severe agitation injection haloperidol was given. I.V Lorazepam was continued, monitoring of arterial blood gas analysis was done.

The sedation was monitored on Ramsay sedation scale. On day 3, patient developed high grade fever (104.6 F) and worsening of altered sensorium. Internal medicine and Hepatology consultations were taken, fever workup for various possible infective aetiologies were done and was negative. Vitals were monitored and physical restraint was completely avoided. Lorazepam was continued and by day 4, his fever

subsided completely, he became alert; oriented in time, place, person and tremors subsided. Lorazepam was shifted to oral fixed dosage and was completely tapered and stopped by day 7. He was started on Baclofen which was increased up to 80 mg/day in divided doses, within next 2-3 weeks. Sessions of relapse prevention counselling with patient as well as his family was started. After discharge, patient remained in regular follow up, working independently, and maintaining abstinence from alcohol use for 8 months.

DISCUSSION

Benzodiazepines are the drug of choice for managing delirium tremens. Many patients are refractory to standard doses of benzodiazepines.[3] Strategies used in such cases include use of higher doses or using combinations of diazepam, lorazepam, midazolam, phenobarbitone, fentanyl, and propofol.[4] Probable causes for the patient's development of sudden high grade fever as well as requirement of higher than standard doses of benzodiazepines were evaluated.[5] Patients with DT get frequently physically restrained due to causes like disruption of therapy, confusion and prevention of falls.[6] However, physical restraint has been associated with likelihood to increase agitation and worsen the neuropsychiatric disturbances.[7] other adverse effects of physical restraint has been reported like thrombosis, rhabdomyolysis, catecholamine rush and even death by asphyxiation. Psychological adverse effects are poor therapeutic relationship and negative impression about care provided.[8] Because of such effects, Mental health care act 2017 allows physical restraint to be legitimate only when all other measures have failed, for the shortest possible duration and continuous vigilance during the period of restraint by a healthcare staff.[9] A few alternatives to physical restraint like keeping patient engaged in conversation, an authority figure's presence near the patient, chemical restraint with sedatives have been suggested, but still the usage of physical restraint remains quite high, especially in emergency settings.[8] The index patient was experiencing the symptoms of alcohol withdrawal delirium and did not show any significant response to benzodiazepine initially. We could not identify any other cause of high grade fever that could necessitate independent treatment. However, the nature of his delirium prompted us to think about other possibilities; it was found that the prolonged physical restrain might be hindering the treatment and physical restraint was removed, hydration was maintained and chemical restraint with haloperidol was used judiciously which finally resulted in the resolution of his delirium. The temporal correlation and nature of response after removing his physical restraint indicate a more direct role in fever because of prolonged physical restraint in contributing to worsening of his delirium tremens. From this experience, it can be commented that in patients with refractory DT, one must look for associated factors that might be contributing to worsening of the symptoms and continue with the Benzodiazepine regime instead of using multiple pharmacological interventions.

CONCLUSION

In this case of DT, standard agents at the usual recommended doses were not sufficient to achieve control of confusion and agitation. The patient required extraordinarily high doses of central nervous system depressants for an extended period. Previous case reports and reviewed literature also talk about use of Midazolam, a short-acting benzodiazepine, is expensive and associated with metabolic acidosis. So in this circumstance, we managed this case only with help of very high doses of Lorazepam because of its low cost and relative safety; and avoiding physical restraint. The tendency to withhold large doses for fear of side effects or to give up in cases requiring prolonged intensive support must be overcome to minimize the prolonged morbidity and mortality that might be associated with long term physical restraint.

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REFERENCES

1. Junghanns K, Wetterling T. Alcohol withdrawal and its major complications. Fortschritte der Neurologie-Psychiatrie. 2017;85(3):163-77.
2. Mayo-Smith MF, Beecher LH, Fischer TL et al. Management of alcohol withdrawal delirium: evidence-based practice guideline. Arch Intern Med. 2004; 164:1405–1412.
3. Sellers EM, Kalant H. Management of the alcohol withdrawal syndrome. Annu Rev Med. 1991; 42:323–340.
4. Guthrie SK. The treatment of alcohol withdrawal. Pharmacotherapy: The J Human Pharmacol and Drug Therapy. 1989;9(3):131-43.
5. Miller FT. Protracted alcohol withdrawal delirium. J substance abuse treatment. 1994;11(2):127-30.
6. Minnick AF, Mion LC, Johnson ME, Catrambone C, Leipzig R. Prevalence and variation of physical restraint use in acute care settings in the US. Journal of Nursing Scholarship. 2007;39(1):30-7.
7. McKinely MG. Alcohol withdrawal syndrome. Crit Care Nurse. 2005;25:40-49
8. Raveesh BN, Gowda GS, Gowda M. Alternatives to use of restraint: A path toward humanistic care. Indian J Psych. 2019;61:S693.
9. Rao R, Varshney M, Singh S, Agrawal A, Ambekar A. Mental Healthcare Act, 2017, and addiction treatment: Potential pitfalls and trepidations. Ind J psych. 2019;61(2):208.

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