

The Impact of a National Injectable Lorazepam Shortage on the Treatment of Catatonia in the General Hospital



DENVER HEALTH
 est. 1860
 FOR LIFE'S JOURNEY

Kenneth Novoa, M.D. ^{1 2}, Thida Thant, M.D. ², Daniel Grine, M.D. ³, Annette Encinias, MS ¹,
 Merlin Ariefdjohan, Ph.D, MPH ²

¹Denver Health Medical Center, ²University of Colorado Anschutz Medical Campus, ³HCA HealthONE

Background

For many years, lorazepam has been considered a first-line treatment for catatonia (Rosebush, 1990).

Due to a less rapid and less extensive drug distribution that can maintain relatively high plasma levels, intravenous lorazepam is usually the preferred formulation (Fink, 1993).

Given the recent national shortage of injectable (intravenous and intramuscular) lorazepam (FDA, 2023), we are investigating the clinical impact this had on our patients with catatonia.

Purpose

To assess for changes in clinical care of patients with catatonia during the injectable lorazepam shortage by looking at number of consults seen a month, total number of encounters, and length of stay for patients with a diagnosis of catatonia during and before the shortage.

As our country continues to experience intermittent drug shortages that include psychotropic medications that can be vital to the treatment we provide our patients, it is prudent to develop alternate treatment strategies should these shortages persist for long periods of time.

If we find that treatment outcomes for patients with catatonia are significantly impacted by shortages in intravenous lorazepam, this should encourage clinicians to explore the efficacy of other lines of treatment that may help suggest a uniform second-line of treatment should electroconvulsive therapy (ECT) not be immediately available.

We have no disclosures to report.

Methods

We are using billing and coding data to identify all patients who have been treated for catatonia on the consultation-liaison (C-L) psychiatry services at Denver Health Medical Center and University of Colorado – UC Health from April 2016 to March 2023. We are comparing the number of patients seen monthly, the number of encounters generated, and the lengths of stay before and during the national injectable lorazepam shortage began (identified at our institutions as May 2022). Using Poisson or Negative Binomial regression calculations, we looked for statistically significant differences in the metrics listed above. Special acknowledgement & thanks to our biostatistician Ryan Loh for analyzing our data.

Results

Site/Variable (Time Period: April 2016 – May 2023)	Denver Health Medical Center	University of Colorado – UC Health
Total # of unique patients w/diagnosis of catatonia	66	57
Total # of hospital encounters	75	71
Total # of C-L encounters	1357	883

Denver Health Medical Center	Before Shortage	During Shortage
Average # Patients Admitted/Month	1.525 +/- 0.68	1.75 +/- 1.04
Average # C-L Encounters Per Admission**	15.67 +/- 17.78	28.64 +/- 33.71
Average Length of Stay** (days)	19.70 +/- 27.57	38.93 +/- 37.38

** Denotes statistically significant finding

University of Colorado - UC Health	Before Shortage	During Shortage
Average # Patients Admitted/Month	2.10 +/- 0.92	2.36 +/- 1.34
Average # C-L Encounters Per Admission	11.18 +/- 8.81	11.00 +/- 17.07
Average Length of Stay (days)	26.14 +/- 30.73	36.06 +/- 90.12

Discussion

Both sites saw an increase in the average length of stay for catatonic patients seen during the shortage. At one site, both the number of encounters for patients treated with catatonia and their lengths of stay have statistically significantly increased during the shortage. This is likely due to a multitude of factors including use of alternative benzodiazepines with much longer half-lives, use of second and third-line oral treatments in patients that cannot consistently or reliably take oral medications, and increased reliance on ECT that can take long periods of time to set up at our institutions.

Catatonia is under-diagnosed in hospitals and if left untreated can result in significant morbidity and mortality. In times where there is a shortage of the typical first-line treatment, clinicians must be vigilant in both diagnosing catatonia early and preparing for ECT sooner than they may be used to, particularly if it is not available at their institution.

We hope to conduct future investigations into the efficacy of second and third-line medication treatments at our institutions for patients with catatonia to better inform our treatment plans when first line interventions are not available.

References

- Rosebush PI, Hildebrand AM, Furlong BG, et al: Catatonic syndrome in a general psychiatric inpatient population: frequency, clinical presentation, and response to lorazepam, J Clin Psychiatry 51:357-362, 1990.
- Fink M, Bush G, Francis A: Catatonia: a treatable disorder, occasionally recognized, Direct Psychiatry 13:1-7, 1993.
- United States Food & Drug Administration. (2023, March 31). Current and Resolved Drug Shortages and Discontinuations Reported to FDA. Retrieved from https://www.accessdata.fda.gov/scripts/drugshortages/dsp_ActiveIngrEdientDetails.cfm?AI=Lorazepam%20Injection&st=c&tab=tabs-1