Rhabdomyolysis in the Context of Designer Benzodiazepine Abuse

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Background

- Benzodiazepine abuse is commonly seen but clinicians likely not as familiar with designer benzodiazepine abuse.
- Designer benzodiazepines often are derivatives of medically used benzodiazepines but have never been approved for use. They do not undergo the same safety/toxicity testing therefore potency indeterminate and can lead to unforeseen clinical manifestations.
- Easily accessible online, regulation is limited, and cost is low. Challenge for clinicians given the limited research on these substances.
- Flubromazolam, clonazolam examples of designer benzodiazepines. Both triazolo-BZD similar to alprazolam, triazolam.
- We present a case of severe rhabdomyolysis in the context of designer benzodiazepine abuse.

	Typical Dose	Onset	Duration	After Effect	Commonly reported experiences[1]
Flubromazolam	100µg - 600µg	20-45 min	6-12hr	6-24hr; Rebound sedation >24hrs.	Significant sedation, anxiolytic effects. Reports of partial amnesia. Case report of coma, respiratory failure.
Clonazolam	75µg – 1000 µg	10-30min	6-10hr	1-12hr	Sedation, anxiolytic effect, amnesia, lethargy/drowsiness, slurred speech, tachycardia. Difficult to dose and potent at low doses.

Figure: Paraphernalia found in patient's belongings – Note clonazolam and psilocybin mushroom.

Case Details

- 26 year old male w/ history of polysubstance abuse including alcohol, prescription and synthetic opioids, psychedelics, and benzodiazepines presented to the ED due to accidental overdose.
- Presented with altered mental status, agitation, and seizure like activity. Vitals stable other than temperature of 101.8 °F (38.8 °C).
- Urine drug screen positive for buprenorphine alone. Negative for benzodiazepines. Standard UDS unable to detect designer benzodiazpeines. Later endorsed use of flubromazolam and clonazolam.
- Initial CK elevated at 3,910 U/L (ref 50-190 U/L) that rose to peak of 131,920 U/L on day 2 of admission.
- Mental status, CK returned to baseline by day 5 with symptomatic management and patient able to be discharged.

	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6	Discharge (Day 9)
CK (50-180 IU/L)	3910 IU/L	116,716 IU/L	79,851 IU/L	131,920 IU/L	72,798 IU/L	57,032 IU/L	4,494 IU/L
ALT (5-50 IU/L)	22	145	251	326	331	345	259
AST (5-40 IU/L)	63	765	980	1033	996	855	211

Discussion

- Rhabdomyolysis in the context of flubromazolam has been previously reported with a peak level of 15,960 U/L. [2]
- No prior reports of rhabdomyolysis in context of clonazolam use.
- Research is limited and most of the information available is from "psychonauts" who provide first hand accounts of their experience with these substances. [1]
- Available for purchase online. Patient reported going to rcchems.com and similar sites to purchase flubromazolam and clonazelam in liquid forms.
- Onset is variable and effects can last for significant amount of time. Our patient showed ongoing sedation with a period of rebound sedation that occurred on second day of admission which is consistent with prior reports.

Conclusion

- This case demonstrates the potential dangers of designer benzodiazepine abuse including elevated CK, prolonged sedation, and severe rhabdomyolysis.
- C-L psychiatrists should be aware of common designer benzodiazepines given ease of availability .
- Given research is limited to a small amount of case reports, more studies are needed to further explore the consequences of designer benzodiazepine use.

References

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