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An Analysis of Phenibut (ß -phenyl-y-aminobutyric acid) Withdrawal

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Abstract

Phenibut (β -phenyl-γ-aminobutyric acid) is a psychoactive GABA analogue marketed as a nutritional supplement and “nootropic” online. Phenibut consumption poses a high risk of potential abuse. Withdrawal from Phenibut mimics benzodiazepine and alcohol withdrawal. Without proper management, Phenibut withdrawal may be equally as dangerous as benzodiazepine and alcohol withdrawal. Baclofen can be prescribed for outpatient symptomatic relief of Phenibut withdrawal.

Keywords

- **phenibut, phenibut withdrawal, nootropic withdrawal**

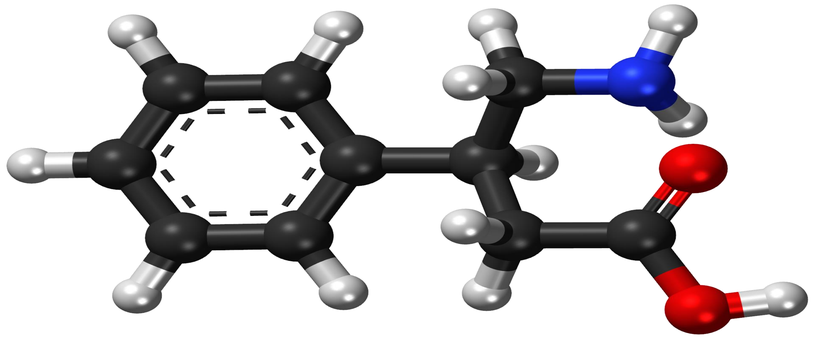
Conflicts of Interest

There was no funding related to this case report. The authors declare that they have no conflict of interest.

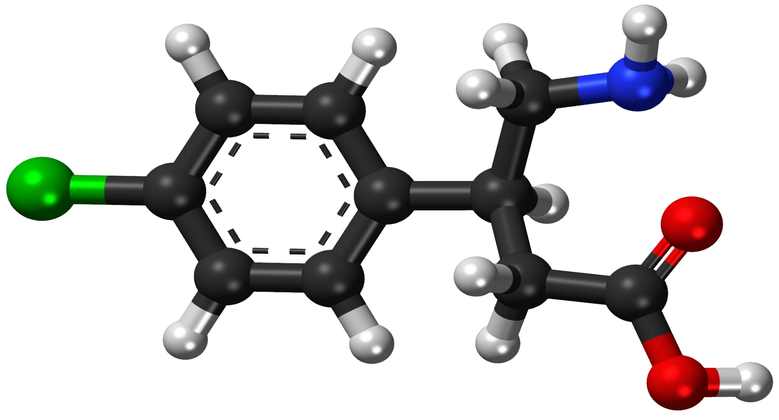
Case

- 33 y/o M presented to the emergency department for insomnia, anxiety and palpitations after attempting to wean himself off of Phenibut. Patient endorses using approximately 6g/day for 1 month for anxiolysis, mood-stabilization and euphoria. Last dose was 10 hours prior to arrival. Patient has no past medical or surgical history. Vitals were stable, Wt 72 kg. Physical Exam unremarkable. Labs unremarkable. Case reviewed with poison control. Recommendation of self-taper of Phenibut and Baclofen PRN for symptomatic relief. Poison Control advised against completely stopping Phenibut. Patient discharged with 10 mg Baclofen TID PRN.

Stoichiochemistry



Phenibut



Baclofen

Discussion

Phenibut (β -phenyl-γ-aminobutyric acid) is a psychoactive GABA analogue gaining popularity in the United States as a nootropic dietary supplement. Phenibut primarily acts on GABA-B, resulting in anxiolytic effects and depression: decreased levels of consciousness, muscle tone, respiratory drive, thermoregulation and altered hemodynamics.
Phenibut also has stimulatory activity on dopamine receptors and antagonizing activity on β-phenethylamine (PEA). Although, Phenibut is often advertised to users for its nootropic properties, including facilitated memory-enhancement (at 5-10mg/kg), a significant amount of Phenibut users self-admittingly use at higher doses to achieve anxiolytic and tranquilizing effects (50-100mg/kg). The combination of accessibility and marketing of Phenibut as a “nutritional supplementation” has made Phenibut a significant drug-of-potential abuse in American society. Therefore, it is important that American physicians understand the standard-of-care management for Phenibut withdrawal.

Chronic use of Phenibut clinically mimics presentations of other GABA agonist drugs of abuse. Psychomotor agitation, anxiety, tremulousness, insomnia, hemodynamic instability, hallucinations and seizures have been documented with severe Phenibut withdrawal. The stoichiochemistry of Phenibut closely resembles Baclofen; both agonizing GABA-B receptors. Due to similar stoichiochemistry, Baclofen lends itself useful for treating both acute and chronic withdrawal of Phenibut. Baclofen is a GABA-B agonist, similar to Phenibut, but does not have affinity for gamma-hydroxybutyrate (GHB) receptors. Baclofen’s lack of affinity for GHB significantly reduces abuse potential, making Baclofen a safer withdrawal agent when compared to other treatment modalities such as gabapentin, phenobarbital and benzodiazpaines. According to Samokhvalov, Baclofen can be used for treatment of phenibut dependence; 1 g of phenibut may be substituted w/ 8-10 mg of baclofen. Although, medications such as phenobartital, Precedex and benzodiazapines have been shown to successfully treat acute Phenibut withdrawal symptoms.

Despite its increasing popularity in the West as a new nootropic, Phenibut was developed in the Soviet Union in St. Petersburg Russia during the 1960’s and has been available via prescription in Russia for decades. Contributing to part of its lure in the West, Phenibut has even been used to treat spaceflight asthenia in Cosmonauts. Phenibut is most often purchased online in the US, where it is advertised as a nutritional supplement. Vendors often advertise warnings against using more than 2000 mg daily, without directly addressing withdrawal and toxicology potential. The combination of online accessibility, unscrupulous marketing and addiction-potential lends Phenibut to be a destructive drug with withdrawals physicians should be prepared to manage.

Conclusions

- The emergence of easily accessible nootropic drugs poses an evolving challenge for physicians. Physicians must remain informed of the existence of new substances-of-abuse, their corresponding mechanisms of action and their withdrawal managements. Phenibut withdrawal may mimic the presentation of alcohol and benzodiazepine withdrawal. Baclofen has shown potential in successfully treating Phenibut withdrawal both outpatient and inpatient.

References

Ahuja T, Mgbako O, Katzman C, Grossman A. Phenibut (β -phenyl-γ-aminobutyric acid) Dependence and Management of Withdrawal: Emerging Nootropics of Abuse: Case Rep Psychiatry. 2018 Apr 30; 2018:9864385. doi: 10.1155/2018/9864285. PMID 2985431; PMCID: PMC 5952553.
Hardman MI, Sprung J, Weingarten TN. Acute phenibute withdrawal: A comprehensive literature review and illustrative cae report. Bosn J Basic Med Sci. 2019 May 20;19(2):125-129. doi: 10.17305/bjbms.2018.4008. PMID: 30501608; PMCID: PMC 6535394.
Journey EA. Phenibut (β -phenyl-γ-aminobutyric acid) An Easily Obtainable “Dietary Supplement” With Propensities for Physical Dependence and Addiction. Curr Psychiatry Rep. 2019 Mar 9;21(4):23. doi:10.1007/s11920-019-1009-0. PMID: 30852710.
Lapin I. Phenibut (beta-phenyl-GABA): a tranquilizer and nootropic drug. CNS Drug Rev. 2001 Winter; 7(4):471-81. doi: 10.1111/j.1527-3458.2001.tb00211.x. PMID : 11830761; PMCID: PMC6494145.
Samokhvalov AV, Paton-Gay CL, Balchand K, Rehm J. Phenibut dependence. BMJ Case rEP. 2013 Feb 6;2013:bcr2012008381. doi: 10.1136/bcr-20120008381. PMID: 23391959; pmc3604470