ToxTidbits

Maryland Poison Center
UNIVERSITY OF MARYLAND SCHOOL OF PHARMACY

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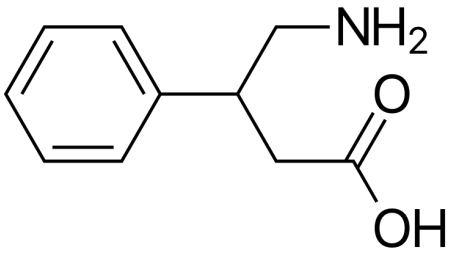
The Maryland Poison Center's Monthly Update: News, Advances, Information

Phenibut



Phenibut Chemical Structure

Phenibut (β-phenyl-γ -aminobutyric acid) was developed in Russia for the treatment of anxiety and has been used there since the 1960s. Phenibut is a gamma-aminobutyric acid type B (GABA-B) agonist with actions at GABA-A and dopamine receptors, as well as on calcium channels (*J Clin Pharmacol. 2024 Feb 10. Epub ahead of print*). In the US and Europe, where phenibut is not approved for therapeutic use, the drug can be purchased online. Common reasons given for use of phenibut are euphoric effects, decreasing anxiety, improving cognitive abilities (nootropic), improving sleep, and/or to detox from other substances; evidence for these uses is often lacking. There are numerous reports of severe reactions, including death, and withdrawal symptoms in patients using phenibut recreationally. A 2020 report noted a sharp increase in phenibut exposure calls to Poison Centers from 2009-2019. It is unclear why there was such a sharp increase in calls, but the authors speculate the availability and growing popularity for recreational use are factors (*MMWR Morb Mortal Wkly Rep. 2020 Sept 4; 69(35):1227-1228*).

Clinical studies on the therapeutic use of phenibut often limited doses to less than 1.5 gm per day (*Clin Toxicol. 2023;61(11):941-951*) and current manufacturer recommendations are to limit its use to no more than five consecutive days followed by a two-day drug holiday (*J Clin Pharmacol. 2024 Feb 10. Epub ahead of print*). An analysis done in 2016 revealed the average dose, when used recreationally, was 2.4 gm daily (*Drug Alcohol Rev. 2016;35(5):591-6*). In their 2024 review article Penzak and Bulloch identified that in every published case of phenibut withdrawal the patient took the phenibut for more than five consecutive days in doses exceeding current manufacturer recommendations (*J Clin Pharmacol. 2024 Feb 10. Epub ahead of print*).

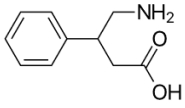
Withdrawal symptoms have been documented to occur after as short a period as only one week of use and as soon as two hours after the last dose was taken. Delirium, hallucinations, seizures, nausea, vomiting, agitation, hyperreflexia, rigidity, and clonus have been reported in patients experiencing withdrawal symptoms. After the onset of withdrawal, symptoms tend to worsen over the first 24 hours and can be protracted, requiring ICU admission to manage symptoms for some patients. One review of 25 articles found that 88% of patients required hospital admission to control their withdrawal symptoms. Benzodiazepines, baclofen, and barbiturates in addition to other adjunctive medications including antipsychotics, alpha-2 agonists, trazodone, buprenorphine, methadone, and antiemetics have been used to manage withdrawal symptoms (*Clin Toxicol. 2023;61(11):941-951*).

Did you know?

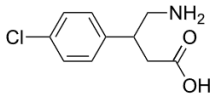
Phenibut, gabapentin, and baclofen have similar chemical structures.

Phenibut is 30 times less active than baclofen. The psychopharmacological activity of phenibut is like that of baclofen, which differs by only one chloride atom from phenibut.

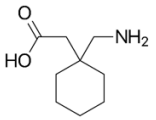
Phenibut - $C_{10}H_{13}NO_2$



Baclofen - $C_{10}H_{12}ClNO_2$



Gabapentin – $C_{19}H_{17}NO_2$



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