

A New Psychoactive Substance, Gamma Hydroxybutyrate (GHB): A Case Report

Hüseyin BULUT 

SBÜ Kanuni Sultan Süleyman Training and Research Hospital, Department of Psychiatry, İstanbul, Turkey

ABSTRACT

Gamma Hydroxybutyrate (GHB) is a central nervous system depressant effecting GABA-B receptors. GHB is taken along with other psychoactive substances like alcohol, cocaine, ecstasy, and amphetamines especially during parties. Due to the fact that it has been linked to sexual assault, GHB has drawn attention in recent years. This substance is often taken by youngsters and results in euphoric states of mind, signs of relief, easiness in communication, increases in sexual appetite, and experiences of different states of mind. Dizziness, hypotension, bradycardia, nausea, and vomiting are typical toxication symptoms of GHB.

Also, epileptic seizures, respiratory depression, and deaths have been reported as a result of taking GHB. It is widely known that the use of GHB in our country has increased gradually. This case report is important as it summarizes the anamnesis, penetration, and clinical symptoms of GHB. In order to prevent the use of GHB, it would be appropriate to develop psycho-education methodologies, establish legislative regulations, and include GHB tests in substance screening analyses.

Keywords: Gamma hydroxybutyrate, psychoactive substance, substance abuse

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INTRODUCTION

Gamma hydroxybutyrate (GHB) is a central nervous system depressant. It shows its effect by binding to gamma-aminobutyric acid (GABA) receptors (especially GABA-B subtype), which is an inhibitory neurotransmitter (1). Its analogs such as GBL (gamma-butyrolactone), BD (1,4 butanediol), GHV (gamma-hydroxyvalerate) and GVL (gamma-valerolactone) are available, especially found in industrial solvents (2). GBL and BD rapidly turn into GHB after intake and show the effect (3).

GHB can be produced in small amounts endogenously in many tissues, including the brain, and acts as a precursor and metabolite of GABA (3).

It is also known as Easy lay, Georgia Home Boy, liquid, liquid ecstasy, Mils, G, liquid X, liquid G and fantasy (4).

GABA-releasing neurons are mostly found in the hippocampus, cortex and amygdala. GHB receptors are located in these regions and have high binding power for G protein receptors in pre- and post-synaptic cells, and act in this manner (5).

In the studies, it has been shown that the effect started with 1.5 mL GBL, the effect of intoxication occurred with 80-100mg/L, and respiratory depression and circulatory collapse presented with 300-500 mg/l (6). Plasma peak concentration has been reached in 20-40 minutes and its effect has been decreased after approximately 1 hour (7).

Although GHB use leads to negative consequences such as loss of consciousness, loss of motor control, exposure to sexual assaults, and

risky behavior; it is often taken by youngsters for reasons such as feeling happy, relaxation, easiness in communication, increase in sexual appetite, desire to experience different states of mind, relief of depression and anxiety (8).

GHB intoxication symptoms appear within 15-20 minutes after intake. Decrease in inhibition, vomiting, abdominal pain and increased saliva are observed (9). When high doses of GHB are taken, vomiting, ataxia, respiratory depression, coma are observed (10).

A structured interview has been conducted with 76 people with a history of GHB use in Australia and the participants have been asked about their negative experiences with GHB use. Of them, 52% have described confusion, 53% vomiting, 58% increased sweating, 8% seizures (10).

As abstinence symptoms, palpitations and high blood pressure have been reported in terms of cardiovascular effects, prolonged delirium with auditory and visual hallucinations in terms of neurological effects and sweating, nausea and vomiting in terms of other systems (11). In a study of 57 cases with abstinence symptoms (of the cases, 36 (63%) were using GHB, 3 (5%) were using 1,4-BD and 18 (32%) were using GBL); of the patients, 67% have been detected to have tremor, 63% to have hallucinations, 63% to have palpitation, 58% to have insomnia, 7% to have seizures and muscle destruction, and 1% to have deaths (12).

CASE REPORT

A patient twenty-five-year-old, single, single-child, university graduate, male, working as a manager in a private company and living alone was referred to psychiatric evaluation by a dermatology specialist with the diagnosis of “urticaria with unknown origin”.

The patient had a history of generalized skin pruritus, swelling of the lips and eyelids that had been intermittent for the past year, however, increased in severity over the last six months.

It was learned that he smoked close to a pack of cigarettes a day, drinking alcohol in the form of social drinking on some weekends and has been using ecstasy, cannabis, and G for three years. The patient has been stated that he was taking G for the last 1 year at weekends and has been using the only G as a substance for the last six months, was using 3–4 ml/day G at most (every 1 hour, 1–1.5 mL each time) at home with friends, and was renewing the hourly G intake to resume the decreasing and ending effect.

The patient, who stated that he had been feeling sad and depressed for several months, distracted and unable to focus on anything, and his business success had been negatively affected, had 4kg weight loss and insomnia complaints in the last month.

He was listing the reasons for using G as feeling happier, getting rid of anxiety and distress, being able to communicate more easily with people, feeling the self-confident and increasing sexual performance. He was also stating that G is cheaper and more accessible than other substances. He was reporting that in the period when he used ecstasy, he felt tired the next day after ecstasy, had decreased appetite and dry mouth; however, none of these effects occurred when he used G and that the normal daily flow continued the next day. However, he was also reporting that he had short-term loss of consciousness the day he received more doses of G than planned.

In the examination, the patient's mood was depressive, his affection has increased on sadness and distress. His thought content was dominated by the idea that his illness was revealed by G and that he wanted to get rid of it.

The patient's urinary substance screening test and VDRL and HIV tests were negative.

MMPI test was reported as normal. The patient was evaluated by a neurologist due to the loss of consciousness defined in his history. Neurological examination, brain MRI and EEG results were reported to be normal. Major depression and substance use disorder were diagnosed. No abstinence symptoms were detected in the patient who stated that he did not use G over the course of two weeks. Sertraline 50 mg/day and olanzapine 5 mg/day were started. Two weeks later, the control examination revealed that his appetite improved, he gained two kilos, felt happier and could sleep comfortably, and he was recommended to come for monthly outpatient visits. During the control examinations, it was observed that the patient did not use GHB and continued his normal life.

DISCUSSION

GHB can be used in narcolepsy, catalepsy, alcohol/opioid detoxification treatments, and also by bodybuilders due to its anabolic effect (13).

It was started to be frequently used in entertainment venues in the 1990s and has attracted attention due to its use in sexual assault and rape events (14).

Due to the fact that it is cheap and easily accessible and no residual effects such as hangover are observed, it is preferred among young people (15).

In recent years, especially in European countries, it is known to be used and abused for entertainment (16). However, it has been reported that the prevalence of use among adults and school-age youth is low compared to other substances in European countries (1–1.4%) (17, 18). In 2011, its use rate has been reported to be 2% (19) among the people going to the clubs regularly in the UK, 1.3% (19) in the general population (15–65 years) in the Netherlands, and 1% (20) in Norwegian youth aged 15–20. It has also been reported to be preferred by homosexual men within the use groups (21, 22).

GHB can be used alone or in combination with other psychoactive substances such as alcohol, ecstasy, cocaine, amphetamines due to their euphoria effects (23, 24). In a study of 60 cases using GHB, 25.9% of the participants mentioned increased sexual stimulation and more comfortable sexual approach after GHB use, and 34.8% stated that they had sexual intercourse with a stranger other than their own partners. In addition, 8.6% have stated that they were in victim status in events considered as a crime, while 3.4% have reported that they suffered from sexual assault (25).

The rate of GHD addiction in the US and European countries is unknown due to lack of follow-up studies and systematic recording mechanisms (26). In addition, it has been reported that diagnoses of anxiety disorder, depression, mood disorders, and psychotic disorders are frequently found in addicted individuals (27). Recently, it is known that help-seeking behaviors have increased in people using GHB (18). In the Netherlands, the number of admissions to addiction treatment centers was 63 in 2008, while it increases to 799 patients in 2012 (28).

There are no scientific studies on the prevalence of GHB use, on its use by which groups and for what purpose in Turkey. The use of GHB and its potentially dangerous life-threatening consequences are currently being understood in our country and efforts are being made to take precautions. The fact that it is easily available and can be prepared even under simple laboratory conditions increases the interest in GHB, especially among young people seeking new substances. Since it does not come to the clinician's mind or the patient does not report it, the use of GHB is often overlooked and its prevalence cannot be determined exactly.

Each patient who comes to the psychiatry outpatient clinic should be asked to obtain information by asking questions about substance use during the interview. Symptoms due to substance use may sometimes seem to be negligible, mild or relatively insignificant. As in our case report, the patient may present with only one symptom (urticaria). Each symptom should be carefully considered, elaborated, and substance use should be kept in mind when considering possible causes. In today's conditions, not only psychiatrists but also physicians from all branches should be aware of new substances become available. As a result, it would be appropriate to develop psychoeducation approaches to prevent GHB use, to establish legislative regulations, and to include GHB test in substance screening analyses.

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