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γ-Hydroxybutyric acid for alcohol-sensitive myoclonus with dystonia

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Alcohol-sensitive myoclonus can be associated with dystonic spasms.[1] Conventional treatments and anticonvulsants occasionally produce some benefit, but not comparable with the improvement induced by alcohol.[1] We report a patient with alcohol-sensitive myoclonus and dystonia who had a consistent and substantial benefit from oral γ-hydroxybutyric acid (GHB). Oral GHB is a drug that is effective both in the treatment of alcohol withdrawal[2,3] and in maintaining abstinence from alcohol.[4]

Case report. A 37-year-old man was evaluated for severe disabling myoclonic jerks of the upper limbs, axial muscles, neck and cranial muscles, which were associated with dystonic spasms of the upper limbs and of the neck muscles. According to the Chadwick–Marsden Evaluation Scale for myoclonus,[5,6] the patient's score was 26 points. The hyperkinesias were not stimulus sensitive. They worsened under emotional stress and during the day, but the patient could control involuntary movements almost completely for a few hours after consumption of more than one liter of beer. The patient's clinical picture has been stable for the last 20 years. In the past, the patient was treated with the following drugs with little or no benefit: sulpiride, thioridazine, alprazolam, diazepam, clonidine, valproate, and clonazepam. Flunitrazepam and trihexyphenidyl produced some benefit, but the patient had two episodes of atrial fibrillation, which contraindicated anticholinergics, and flunitrazepam induced unacceptable sedation at the effective dose. The patient had had his symptoms since childhood. His parents reported that he had a difficult and prolonged delivery and had a "paretic upper limb" during childhood. Family history revealed that two aunts had been affected by "tics."

The patient's neurologic examination did not show any abnormalities besides the involuntary movements. There were no cognitive or major psychiatric disturbances. Results of blood tests were normal (including screening for Wilson's disease and acanthocyte count). EEG, somatosensory evoked potentials, brainstem auditory evoked responses, and motor potentials evoked by transcranial magnetic brain stimulation were normal. Electromyography showed bursts with a duration of 80 to 300 msec in the affected muscles. CT and MRI of the brain were normal.

The patient was treated with a progressively increasing dose of GHB (Alcover, Laboratorio Farmaceutico CT, Sanremo, Italy), starting from 1.575 g/day divided into four doses. At the dose of 6.125 g/day, the patient had a consistent and substantial reduction of involuntary movements (Chadwick–Marsden Scale score, 8), which he referred to as comparable with the effect produced by alcohol but with no side effects. The patient reported a subjective average improvement of approximately 80%. Within 1 hour after each dose the involuntary movements disappeared almost completely. Execution of daily activities, social relationships, sexual activity, and mood also improved. Writing was almost impossible before GHB treatment, but the patient was able to write quite clearly afterward (figure). After 4 months the therapeutic benefit is unchanged and there are no side effects.

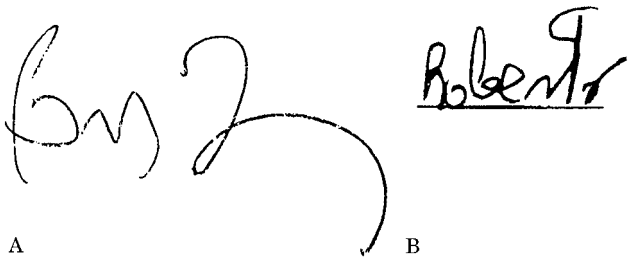

Figure. (A) The patient's signature before γ-hydroxybutyric acid (GHB) treatment was unreadable. (B) The patient's signature (only the first name for privacy) during GHB treatment is clearly readable.

Discussion. Our patient had severe, disabling alcohol-sensitive myoclonus with dystonia, which responded very poorly to previous conventional treatments. Both conditions, however, were relieved markedly by GHB at a dose of 6.125 g/day. GHB is a drug that was introduced approximately 40 years ago, and in recent years has become widely used in the treatment of alcohol withdrawal and in maintaining abstinence from alcohol.[2-4] Some of its actions probably involve changes at the level of dopaminergic pathways in the basal ganglia and, more importantly, are mediated by specific receptors in the brain.[7] Although the drug is not devoid of side effects, and there are possible risks of overdose and abuse,[3] GHB is safe and well tolerated when used properly for prolonged periods. The efficacy of GHB in the management of alcohol dependence is probably due to the close similarity of the actions exerted by alcohol and GHB in the CNS.[3] The neurochemical abnormalities of myoclonus associated with torsion dystonia are unclear, but the experience of our patient suggests that the GHB receptor might be involved specifically. In our patient, drugs acting on the GABAergic pathway produced a much smaller benefit.

GHB should be tried in cases of severe myoclonus with dystonia, especially when the disorder is reported to be alcohol sensitive. This study prompts the assessment of this drug in other nonepileptic myoclonic and dystonic syndromes.

Key words: Myoclonus—Dystonia—Alcohol-sensitive—Gamma-hydroxybutyric acid—Movement disorders.

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