Sodium oxybate and breathing

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Received: 20 October 2009 / Accepted: 3 November 2009 / Published online: 27 November 2009
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Dear Editor:

Use of sodium oxybate (SO) in patients with obstructive sleep apnea (OSA) and narcolepsy is controversial. SO is the first-line treatment for cataplexy in patients with narcolepsy [1]. SO is a derivate of Gamma-hydroxybutyrate (GHB), a natural metabolite of the brainstem. GHB is a short-chain fatty acid, with action as an inhibitory neurotransmitter or neuromodulator. Mamelak [2] observed a decrease in apnea-hypopnea index (AHI) after treatment with gamma-OH in a patient with central apnea and narcolepsy. Another study performed in patients with OSA did not find differences between AHI before and after gamma-OH treatment [3].

The article published by Dr. Feldman [4], and the recent report of two cases in patients with narcolepsy and OSA who suffered an increase in AHI after SO treatment [5], suggests that sodium oxybate administration should be done under polysomnographic control.

We present a 64-year-old man with OSA (obstructive and mixed apneas) and narcolepsy. He has been controlled and treated in our laboratory with Modafinil 300 mg/d, Fluoxetine 20 mg/day and 6.5 cm H₂O nasal continuous positive airway pressure (CPAP). At baseline night, body mass index (BMI) was 29.8 Kg/m² and AHI was 32.3/h. Since excessive daytime sleepiness and daily cataplexy persisted, we performed a new polysomnography (PSG) with CPAP. Next day, the multiple sleep latency test showed a mean sleep latency of 4.3 min and four sleep-onset rapid eye movement sleep periods. Patient started treatment with SO 4.5 g/night (in two doses), and simultaneously Modafinil

and Fluoxetine were gradually withdrawn. One month later, since patient still presented excessive daytime sleepiness and *minor* cataplexy, we decided to increase SO to 6 g/night and perform a PSG, without CPAP in this case. BMI did not change. PSG showed a 45.1% increase of slow wave sleep and a 40.8% decrease in AHI (from 32.3 to 13.2/h).

It is known that most apneic events occur during stages 1 and 2 of non-rapid eye movement (NREM) sleep, and rapid eye movement (REM) sleep, so the decrease of AHI could be due to an increase in slow wave sleep. Whereas in this case, the decrease in AHI was 42.9% during REM and 57.1% during NREM sleep, as reported by Mamelak, so we think that our findings could be due to a greater stability and continuity in sleep produced by sodium oxybate, and its action in decreasing respiratory events with central component and cyclic alternating pattern related [6]. Prospective studies are necessary to confirm our hypothesis.

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