Dystonia in a Patient Treated With Propranolol and Gabapentin

Ernest Palomeras, MD; Pilar Sanz, MD; Antonio Cano, MD; Pilar Fossas, MD

We present a 68-year-old patient with essential tremor who was treated with propranolol hydrochloride (80 mg daily) and gabapentin (900 mg daily) after a history of mild success of gabapentin alone in relieving his symptoms. The patient had several daily episodes of paroxysmal dystonic movements in both hands. After reducing the propranolol dose to 40 mg daily, the dystonic movements resolved. This case suggests a synergistic effect between propranolol and gabapentin.

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Propranolol hydrochloride and gabapentin are both effective for treating essential tremor.1 On the other hand, movement disorders are an uncommon but well-known side effect of gabapentin use. Although large series of patients treated with gabapentin showed its safety,1-3 a few cases of reversible movement disorders have been described with the use of this drug,4-8 especially in patients whose brains were damaged previously.5,6 To our knowledge, no previous cases of movement disorders related to propranolol use have been reported. We describe a patient who developed dystonic movements after the combined use of gabapentin and propranolol.

REPORT OF A CASE

A 68-year-old man presented with a 10-year history of essential tremor. Medical history included a peptic ulcer 30 years prior; his mother also had a history of essential tremor. In 1995 propranolol hydrochloride was started as monotherapy (maximum dose, 120 mg/d) with mild success in relieving his symptoms. Primidone and then clonazepam were used with propranolol but failed to improve the tremor. In April 1998, propranolol was replaced by gabapentin at 900 mg daily. The tremor got worse and propranolol therapy was restarted in December 1998 at 80 mg/d. Two days later the patient developed paroxysmal dystonic movements in both hands; he had several episodes of dystonia daily that lasted about 1 minute. Between episodes, his general and neurological examination findings were normal. Hyperventilation, stress, and physical activity did not precipitate the movements. Laboratory studies, including electrolyte level and parathyroid hormone level were normal. No other cause for the dystonia was evident.

The dose of propranolol hydrochloride was reduced to 40 mg/d 20 days later and the abnormal movements disappeared immediately. Currently the patient is taking propranolol hydrochloride 40 mg/d and gabapentin 900 mg/d with no further problems.

COMMENT

Movement disorders in patients taking gabapentin are rare. Reeves et al9 described 2 patients who developed movement disorders a few days after gabapentin treatment was initiated; both had a complete recovery when it was discontinued. Urinary incontinence in 3 patients (1 case also had bowel incontinence),8 choreoathetotic movements,5,6 ataxia,7 and stuttering8 have also been reported with the use of gabapentin. Although the
mechanism of action of gabapentin has not been well established, it seems to be related to modulation of gabapentin’s transmission; the mechanism by which gabapentin induces movement disorders may follow a similar pathway.

To our knowledge, no cases of abnormal movements have been reported in patients treated with propranolol. Although propranolol and gabapentin were used separately in this patient without adverse effects, our patient developed paroxysmal dystonic movements in both hands when propranolol and gabapentin were used jointly. Interestingly, dystonia was induced with low doses of both agents, suggesting that propranolol may stimulate gabapentin modulation pathways. Further studies are needed to determine the incidence and cause of this disorder.

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Corresponding author: Ernest Palomeras, MD, U. Neurologia, Hospital de Mataró, Carratera Cirera, s/n 08304, Mataró, Spain (e-mail: neurologia2@csn.scs.es).

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