

CORRESPONDENCE

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Dantrolene Prophylaxis and Neuromuscular Disorders

To the Editor:—We read with interest the case report of Watson *et al.*,¹ who described “increased weakness associated with noisy respirations” following oral dantrolene prophylaxis in a child with a “non-specific neuromuscular syndrome.”

In the title of their report, Watson *et al.* imply a causal relationship and, later, “predict that clinically important muscle weakness may occur in similar patients,” yet they fail to provide documentation to quantify this phenomenon in their patient. Dantrolene is known to produce weakness in healthy volunteers,² and one might expect a clinical exacerbation of already compromised neuromuscular function in this setting. We have administered dantrolene sodium iv to a patient with generalized myasthenia gravis, and found our patient to be resistant to the relaxant effects of dantrolene, as quantified by twitch depression, fade ratio, and grip strength measurements made before, during, and after dantrolene administration.³

Watson *et al.* reported a clinical deterioration in their patient, but failed to document deteriorating respiratory status (by arterial blood gases, simple pulmonary function tests, or pulse oximetry) or indices of neuromuscular function. The clinical picture suggests that the patient may have been developing a pneumonia preoperatively, and that the respiratory insufficiency may have been secondary to this, rather than to the dantrolene. Indeed, the abnormal arterial blood gas values obtained intraoperatively, during controlled ventilation, suggest that the pulmonary dysfunction was parenchymal rather than neuromuscular in origin. We recognize, however, that impaired neuromuscular function could lead to a pneumonic process, although the patient was afebrile immediately preoperatively.

We are in agreement with Watson *et al.* that their patient's history dictated preoperative dantrolene prophylaxis. Flewellen *et al.*² have reported the dose of dantrolene sodium probably needed as prophylaxis for malignant hyperthermia to be 2.4 ± 0.03 mg/kg iv. This is based upon the findings that higher doses do not further increase twitch depression, and that, in the hyperthermia suscep-

tible swine model, the dose causing maximal twitch depression is prophylactic for malignant hyperthermia.⁴ We also agree, based upon our own experience,³ that iv dantrolene is superior to oral dantrolene in that it may be administered acutely. This permits closer patient monitoring and results in more predictable blood levels of dantrolene.

In conclusion, little is known about the effects of dantrolene in patients with neuromuscular disease, and, clearly, it should be used with caution. In order to expand our knowledge, clinicians presented with similar problems in the future should be urged to quantitatively document the effects of dantrolene in such patients.

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In Reply:—The letter from Doctors Mora and Eisenkraft¹ regarding our case report² offers some criticism to which we should like to respond but, also, largely supports our contention that little is understood about the inter-

action of dantrolene and the less common or unidentified neuromuscular diseases. Indeed, they rather succinctly recapitulate the main conclusions of our discussion: to wit, “iv dantrolene is superior to oral dantrolene in that