Management of Vasovagal Syncope: Controlling or Aborting Faints by Leg Crossing and Muscle Tension

To the Editor:

We read with great interest the article by Krediet et al., demonstrating that a leg crossing maneuver can prevent or delay vasovagal reactions. We are writing because many clinicians and researchers may be unaware that a similar behavioral treatment has been shown to be very effective for syncope. Applied tension is a behavioral treatment approach that has been demonstrated in several controlled trials to be an effective and inexpensive treatment for syncope related to injection and blood phobia. This treatment entails the use of applied muscular tension to temporarily increase blood pressure to prevent syncope during graduated exposure to increasing anxiety-provoking stimuli. The combination of applied tension and repeated, graduated exposure results in the eventual extinction of the vasovagal syncope reaction, often after only 1 extended treatment session. A randomized trial of applied tension for injection phobia with syncope demonstrated that 80% of patients were clinically improved after just 1 treatment session, and 90% remained improved at a 1-year follow-up. Similar results were obtained in trials of applied tension for syncope due to blood phobia.1,4

Instruction and coaching in the use of applied tension for self-management of syncope in non-phobic patients has not been previously evaluated. A recent study found a high prevalence (82%) of vasovagal responses to head-up tilt in a sample of patients with blood/injury phobia, suggesting that they might share a similar underlying circulatory dysfunction with non-phobic patients. Thus, the applied tension approach may prove to be a useful adjunct or alternative treatment to medications or cardiac pacing for other causes of syncope. The results of the study by Krediet et al. indicate that this is a very promising area for future inquiry and would benefit from increased collaboration between cardiology and behavior therapy researchers.

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Response

We thank our behavioral therapy research colleagues for sharing their interesting observations on the effectiveness of applied skeletal muscle tension to combat vasovagal syncope due to injection and blood phobia. We certainly agree that this approach deserves further study. Prior observations suggest that applied muscle tension and psychological counseling may not only be effective in preventing/aborting vasovagal syncope due to phobias, but also in other situations. In Italy, the older generation of general practitioners advised patients prone to fainting to carry a wooden egg (used in the old days for darning socks) and to apply muscle tension by gripping the wooden egg forcefully as soon as a faint was imminent (M. Brignole, MD, PhD. Arrhythmologic Centre, Department of Cardiology, Ospedale del Tigullio, Lavagna, Italy, personal communication 2001). These folklore stories inspired Brignole to apply arm tensing to combat vasovagal syncope: As an alternative to the wooden egg, a rubber ball is advised presently in Italy (Brignole, personal communication). Another example from the literature about the importance of skeletal muscle tone and psychological factors involved in vasovagal fainting comes from the classic investigations by Engel et al. These clinical investigators emphasized that muscle weakness from inhibition of skeletal muscle tone is an early and constant symptom in patients with vasovagal syncope, and as much as 1.5 L of blood is estimated to be shunted to the muscles during a faint. They also showed that muscle contractions could postpone or abort vasovagal fainting. These investigators also emphasized that emotional reactions to threatening and unusual situations play a potent role in precipitating a vasovagal faint and that conditioning plays an important role in the recurrence of vasovagal reflex responses.

Our research has demonstrated the effectiveness of physical counterpressure maneuvers for aborting vasovagal faints. The current challenge is finding effective methods for instructing patients in the use of these maneuvers in daily life. Moreover, properly designed trials should be started to further document the reduction rates in the frequency of vasovagal syncope and the subsequent improvement in quality of life by giving patients the opportunity to regain self-confidence in provocative situations. Psychological deconditioning therapy is the first choice for patients with vasovagal faints due to injection and blood phobia. Patients with other types of vasovagal syncope yet to be identified may also benefit from such therapy in addition to the use of physical counter maneuvers. Medical personnel dealing with patients with vasovagal syncope should therefore be aware of the existence of behavioral-therapeutical options.

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