
Vocal cord dysfunction: ready for prime-time?

It has been more than 20 years since Christopher et al¹ published their landmark description of 5 patients with vocal cord dysfunction (VCD) presenting as asthma in the *New England Journal of Medicine*. Since that time, manuscripts and abstracts describing more than 1,400 patients with VCD have been published in the medical literature.² A VCD-like syndrome has even been described as a cause of poor race performance in horses.³ Despite this body of literature, we have lacked basic information about the cause of this involuntary disorder and outcomes data to help validate current treatment approaches.

In this issue of the *Annals*, Doshi and Weinberger⁴ significantly add to our knowledge of this disorder by describing long-term outcomes obtained via a structured telephone interview in 28 children and adolescents identified by a retrospective medical record review from a population of individuals diagnosed as having VCD during a 13-year period. As the authors acknowledge in their discussion, their study has several limitations, including the retrospective design and the large number of patients (21 of 49 or 43%) lost to follow-up. Nevertheless, given the paucity of structured outcomes data currently published in the medical literature, their contribution is important.

Interestingly, 2 distinct clinical phenotypes were identified in their original population of 49 patients. One group had VCD triggered only by exercise and the second group had spontaneous onset of VCD symptoms without an exercise trigger. Speech therapy, the currently accepted preferred intervention, was recommended for all patients in the spontaneous VCD group. In those with exercise-induced symptoms only, 7 were prescribed a metered-dose inhaler containing a short-acting anticholinergic agent to be used before exercise. The remainder of the exercise-induced VCD group received no treatment intervention.

The long-term patient outcomes (obtained a median of 3 years after diagnosis) were uniformly excellent regardless of the intervention. In the exercise-induced group, 16 (94%) of 17 patients reported cessation of symptoms. All 6 of the patients who filled their prescription for the anticholinergic agent reported excellent control of symptoms when used before exercise. Ten (91%) of the 11 patients with spontaneously occurring VCD also reported cessation of symptoms. Interestingly, 100% of the group that was noncompliant with treatment recommendations (either did not attend speech therapy as recommended or did not fill the prescription for the anticholinergic agent) had complete symptom resolution. One can only speculate about the reasons that these individuals had such an excellent long-term outcome. Perhaps they

were satisfied with finally receiving a diagnosis and thus were able to begin to deal with their symptoms successfully. Alternatively, several of the exercise-induced group either modified or discontinued the activity that triggered their symptoms.

The excellent clinical response to an inhaled anticholinergic agent may give a clue to the underlying abnormality responsible for the paradoxical vocal cord motion seen in VCD. A recent editorial has suggested altered autonomic balance as a cause of the disorder.⁵ This view is supported by recent case reports of VCD occurring as a consequence of prolonged vagal nerve stimulation used in the treatment of intractable seizures.^{6,7} I concur with the authors that a double-blind, placebo-controlled trial using ipratropium is warranted. Additionally, now that a long-acting anticholinergic agent, tiotropium, is available in the United States, one can speculate that it may be worthwhile studying this agent in the group with spontaneous onset of VCD symptoms.

With these developments, we seem to be approaching a new era in the understanding of VCD. Just the fact that we are legitimately discussing long-term outcome studies and possible double-blind, placebo-controlled trials places the science surrounding VCD at a new level. The positive outcomes data underscore that VCD appears to be a self-limited disorder once the diagnosis is made. This should energize us to encourage our colleagues in allergy-immunology and primary care to learn the characteristic presentations of this disorder so that the diagnosis can be made without delay.

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