Etiology of exercise-induced dyspnea: Not just exercise-induced asthma or vocal cord dysfunction

To the Editor:

In considering the differential diagnosis of exercise-induced asthma, The Work Group Report on exercise-induced asthma[1] failed to consider that the differential diagnosis of exercise-induced dyspnea includes more than vocal cord dysfunction and the less common entities of exercise-induced laryngomalacia and exercise-induced anaphylaxis. In a recent report, only 8 of 52 children referred to a pediatric pulmonologist with a diagnosis of difficult-to-manage exercise-induced asthma actually had evidence for exercise-induced bronchospasm.[2]

In a publication from the Pediatric Allergy and Pulmonary Division at the University of Iowa, 98 of 142 patients referred to our clinic for exercise-induced dyspnea had their symptoms attributed to asthma by the referring physician. Among the 117 for whom symptoms could be reproduced during treadmill exercise testing, only 11 had exercise-induced asthma. Seventy-four demonstrated only normal physiologic exercise limitation, 48 of these 74 with normal to high cardiovascular conditioning and 26 with poor conditioning.[3] Other diagnoses associated with reproduced exercise-induced dyspnea included restrictive abnormalities in 15 patients, vocal cord dysfunction in 13 patients, exercise-indued laryngomalacia in 2 patients (1 of whom had unilateral vocal cord paralysis), primary hyperventilation during exercise in 1 patient, and supraventricular tachycardia in 1 patient.

Our data indicated that exercise-induced asthma is unlikely to be the etiology of exercise-induced dyspnea in the absence of other current or past symptoms consistent with asthma or the failure for albuterol to block exercise-induced dyspnea when baseline pulmonary function is normal. Exercise testing that monitors cardiopulmonary physiology while symptoms are reproduced provides the most comprehensive means of identifying the cause of exercise-induced dyspnea. Identifying the cause is essential for treating and/or counseling the patient.[3]

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Disclosure of potential conflict of interest: The author has declared that he has no conflict of interest.

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Available online October 10, 2007.
doi:10.1016/j.jaci.2007.08.062

Reply

To the Editor:

Weinberger[1] suggests that the Work Group "failed to consider that the differential diagnosis of exercise-induced dyspnea includes more than vocal cord dysfunction… exercise-induced laryngomalacia and exercise-induced anaphylaxis." Weinberger may not have appreciated the focus of our report, on exercise-induced asthma rather than exercise-induced dyspnea[2]; the references to which he refers discuss children and young adults with exercise-induced dyspnea and not exercise-induced asthma.[3,4]

Physical deconditioning is one common cause of exercise-induced dyspnea, particularly in school-age children who do not have asthma, but some of these children are mistakenly diagnosed as having asthma. Deconditioning is common in sedentary, obese children. It may be seen in children with asthma, even well-controlled asthma, if they were previously unable to exercise because of poor asthma control or if their activity was restricted by overly concerned parents. Individuals with apparently normal or even some with high cardiovascular fitness may have dyspnea as well, as Weinberger's group[3] reported.

We also agree that asthma is a common cause of exercise-induced dyspnea[1] but only when accompanied by other symptoms of asthma.[2] The patients described retrospectively by Weinberger's group[3] presented with exercise-induced dyspnea but the manuscript failed to quantify or even describe the presence of cough, wheeze, and tight chest in these patients, especially occurring 5 to 30 minutes after intense physical exercise as is expected with typical exercise-induced asthma. Thus, we cannot evaluate these patients as to whether they were likely to have asthma.

In summary, we agree with the previously referenced manuscript that asthma is a common cause of dyspnea[3] but we disagree that a history of exercise-induced dyspnea alone is a typical presentation for exercise-induced asthma, which most commonly presents with dyspnea, cough, wheezing, chest symptoms, and a drop in FEV_1 from baseline. In Weinberger's series,[4] not surprisingly, only 11% of their subjects had a positive exercise challenge. Thus, we chose not to include a detailed description of all the variable clinical presentations and causes of exercise-induced dyspnea in a discussion of the differential diagnosis of exercise-induced asthma.

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Available online October 15, 2007.
doi:10.1016/j.jaci.2007.08.064

American Academy of Otolaryngic Allergy endorses the Allergen Immunotherapy Practice Parameter

To the Editor:

On behalf of the American Academy of Otolaryngic Allergy, we would like to congratulate Linda Cox, MD, Supplement