Clinical Allergy Tips
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From the Editor: accurate diagnosis of exercise induced dyspnea is essential to establish the adequate treatment and prevent unwanted outcomes. In this Clinical Allergy Tip, Dr. Stanley Fineman provides practical information on how to explore differential diagnosis of exercise induced asthma.

Dyspnea in a High School Athlete
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A 15 yo high school soccer player recently came to my office complaining of trouble breathing during her soccer competitions. She had been diagnosed with asthma 2 years ago when she joined the team and was using ICS/LABA daily but still felt like she needed her albuterol while playing because she was having shortness of breath with difficulty getting a full breath on inspiration. Although she did not have much cough, she had received oral prednisone without significant change in her symptoms. She also stated that she doesn’t get much benefit from her albuterol. In the office her exam was normal and FEV1 84%.

Was this really uncontrolled asthma or was there something else causing her dyspnea?

It is important to understand the characteristics of dyspnea symptoms, is it primarily with inspiration or with expiration? Airway obstruction should be associated with prolonged expiration. Inspiratory difficulty could be a symptom of upper airway obstruction such as vocal cord dysfunction (VCD), stress or even just from conditioning.

When does it start during activity? Exercise induced asthma is typically triggered after 6-10 minutes of rigorous aerobics. Stress or conditioning induced dyspnea or VCD can occur at any time, particularly with intense competitive situations. A spirometry with inspiratory and expiratory flow loop is critical. Post-bronchodilator spirometry is also helpful to document reversible airway obstruction. Upper airway obstruction can be demonstrated with inspiratory flow loop.
An exercise challenge with spirometry is the best way to document whether it is true exercise induced asthma. Another option is to consider using a peak flow meter. Measuring PEFR before or during exercise and after use of albuterol can frequently be helpful to document airway obstruction.

In my patient’s case there was no obstruction on her spirometry and no change after bronchodilator. Her eNO was 15 ppm (wnl) and she didn’t have any change in her PEFR with soccer. She did an exercise challenge in our office and within 5 minutes became quite dyspneic with inspiratory stridor. Her spirometry had the classic flattening of the inspiratory loop. Using nasopharyngoscopy her vocal cord dysfunction was documented. After explanation of the real problem and getting counseling and speech therapy she was able to eventually discontinue her ICS/LABA and is playing soccer without a problem.

The differential diagnosis of dyspnea includes other conditions besides asthma, including:
- Pulmonary illnesses like COPD and interstitial diseases
- Cardiovascular disorders
- Hyperventilation/psychogenic
- Deconditioning/obesity

The main teaching points of this case:
- Not all dyspnea is asthma.
- Be sure to confirm the diagnosis of asthma.
- The peak flow meter can be useful as a diagnostic tool.

References:
