JNP

Breathlessness in an Older Woman

Roseann Velez, DNP, FNP, Mary K. Donnelly, DNP, ANP,
Krysia Hudson, DNP, RN, and Elizabeth Sloand, PhD, FAAN

INTRODUCTION

The following case involves a healthy, 75-year-old woman who presented with the symptom of breathlessness. Research has shown that patients' descriptions of their symptom of breathlessness can provide diagnostic clues.[1] The two general categories of dyspnea causation are pulmonary and cardiovascular. Less common pathologies causing the symptom of breathlessness include psychiatric, gastrointestinal, and neuromuscular disorders.[2] Patients who describe breathlessness as not getting enough air may have heart failure (HF), whereas patients who describe chest tightness may have a pulmonary etiology. The experience of dyspnea derives from interactions among multiple physiologic, psychological, social, and environmental factors and may induce secondary physiologic and behavioral responses. Providers must determine whether the symptom of breathlessness is of pulmonary origin or a symptom secondary to an alteration of another body system. Prioritization of treatment of breathlessness requires astute clinical knowledge of differential etiologies that can cause a sensation of inability to breathe.

CASE PRESENTATION

A 75-year-old woman presented to a nurse practitioner (NP) with a chief complaint of sinus symptoms for 2 weeks. Her nasal congestion, headaches, postnasal drip but was most concerned with an occasional "wheezing in her throat". She took deep breaths a few times a day as she "cannot get enough air." She increased her alprazolam 0.25 mg from approximately twice a week to a daily dose since the alprazolam lessened the "wheezing" sensation. Phenylephrine 10 mg every 4 hours, cetirizine 10 mg daily, and closing her windows at home decreased her sensation of breathlessness. She had not been using her fluticasone 2 sprays in each nostril once daily for her allergic rhinitis (AR). Further review of systems proved noncontributory. She denied recent travel, exposure to sick contacts, recent hospitalization, or trauma. Her 3 sinus infections in the past year were treated with antibiotics, and she was sure her present symptoms were from a sinus infection.

HISTORY

A stress test, electrocarardiogram (ECG), and thyroid, lipid, and chemistry studies were normal within the past year. Her gastroesophageal reflux was being controlled with omeprazole 20 mg once daily, and her osteoarthritis was being controlled with meloxicam 15 mg daily. Remote past surgery included tonsillectomy, dilation and curettage, and two vaginal deliveries with no sequelae. Family history is significant for her mother dying at age 74 from HF, and her brother dying at age 49 from HF. Her father died as a younger man from trauma. She quit using tobacco 20 years earlier and denied alcohol or drug addictions. She lives with her husband, and their income is adequate. Her mammogram, dual-energy X-ray absorptiometry, and colonoscopy were current and normal. She denies medication allergies, and immunizations were current with the exception of zoster vaccine. Over-the-counter medications include multivitamin supplement, calcium carbonate 600 mg daily, vitamin B complex capsule (cyanocobalamin) 500 μg once daily, and chondroitin glucosamine one capsule twice daily at her own discretion. No medications were new, and she denied recent stress or dietary changes.

EXAM AND LABORATORY FINDINGS

Vital signs were as follows: temperature 97.4°F; blood pressure (sitting) 130/82 mm Hg; heart rate (radial) 81 beats/min; oxygen saturation (O_2sat) 98%; height 172.72 cm; weight 73.57 kg; and body mass index 24.6. She gained 0.54 kg since her last visit and described her pain as 2 on a scale of 0-10. Although she did not report pain, she perceived a sensation of pain. Physical examination was benign except for pale, boggy nasal turbinates. ECG revealed normal sinus rhythm, old right bundle branch block, and left anterior fascicular block, but no acute changes.

Table. Echocardiogram and Cardiac Catheterization Results

Echocardiogram results

1. The left ventricle is moderately dilated with normal wall thickness.
2. Global left ventricular systolic function is moderately reduced with an estimated ejection fraction of 30%.
3. The left atrium is mildly dilated.
4. The aortic valve is trileaflet, but opens normally with normal systolic flow. Mild aortic valve regurgitation is present.
5. Mitral valve excursion is reduced and suggests reduced left ventricular stroke volume. Mild to moderate mitral regurgitation is present.
6. Right atrium and right ventricle appear normal in size and function.
7. Tricuspid valve opens normally with normal diastolic flow.

Cardiac catheterization results

VC (vena cava) saturation 68%.
PA saturation 65%.
Right heart catheterization.
Left ventriculography.
Coronary angiography RA pressure 14 mm Hg.
RV pressure 65/12, EDP 19 mm Hg.
PA 62/30 mm Hg, mean 44 mm Hg.
PCWP 31 mm Hg.
Left ventricular end-diastolic pressure 40 mm Hg.
There is no gradient across the aortic valve. The estimated EF is 20%-25% with global hypokinesis and a severely dilated left ventricle with ectopic-induced mitral regurgitation during the ventriculogram.
Right dominant appearance.

1. Left main: no disease.
2. Left anterior descending artery: the LAD has a proximal-to-middle 10%-20% narrowing with minimal luminal irregularities.
3. Circumflex: the circumflex has minimal luminal irregularities.
4. Right coronary artery: the RCA is a dominant vessel with minimal luminant irregularities.

EDP = end-diastolic pressure; EF = ejection fraction; LAD = left anterior descending artery; PA = pulmonary artery; PCWP = pulmonary capillary wedge pressure; RA = right atrial; RCA = right coronary artery; RV = right ventricle.

Inhaled albuterol, 2 puffs every 4 hours as needed, was prescribed with the recommendation to resume fluticasone propionate nasal two sprays in each nostril daily and continue current medications. Alprazolam was recommended for anxiety only. A chest X-ray was ordered with follow-up in 2 days. If her symptoms were to worsen before the X-ray visit, she was instructed to go to the emergency department.

The patient later returned reporting fatigue and worsening sudden-onset dyspnea (SOB), described as not getting enough air worse at night and when supine. The fluticasone propionate nasal and albuterol lessened her wheezing and allergy symptoms, but her wheezing increased in frequency. Further review of symptoms was noncontributory. Examination was unchanged except for a decrease in O_2sat to 96%. A methylprednisolone pack was prescribed. Chest X-ray results indicated a possible left retrocardiac infiltrate or atelectasis, small bilateral pleural effusions, and emphysema, which prompted a pulmonary consultation. Other findings were cardiomegaly, mild degenerative changes of the spine, and scoliosis.

PULMONARY CONSULTATION

She reported mild SOB that began with allergy symptoms, followed by progressively worsening SOB both at rest and with exertion, increasing her anxiety. Her wheezing became more significant, but she had no cough or sputum production. The methylprednisolone pack decreased her symptom of breathlessness, promoted sleep, and supported a diagnosis of asthma that improved dramatically with steroids. The pulmonologist noted a family history of HF and determined the etiology of the new onset of dyspnea was unclear. The patient was at risk for developing asthma given her long-standing AR, yet her pulmonary function test showed no obstruction. Although her chest X-ray was read as emphysema, there was no evidence of chronic obstructive pulmonary disease (COPD), with a relatively normal pulmonary function test. Factors that raised the possibility of significant cardiovascular disease (CVD) were that she had now developed a resting tachycardia, and she had an enlarged cardiac silhouette on X-ray. Because she was improving with the methylprednisolone, empiric therapy for asthma with steroids and bronchodilators was continued. Budesonide/formoterol 80/4.5 μg, 2 puffs twice daily, was prescribed.

CARDIOLOGY CONSULTATION

She was referred to cardiology for evaluation of cardiomyopathy noted on chest X-ray, low ejection fraction (EF), and exertional dyspnea, which, unlike her resting dyspnea, was unrelieved with steroid