

Respiratory Symptoms: A Reason to Obtain Spirometry

Chronic obstructive pulmonary disease (COPD) is one of the leading causes of death and disability in the United States and around the world, yet it remains an under-recognized disease.^{1,2} This is true not only in the general population, but among physicians, thus resulting in the under-treatment of a treatable disease.³

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The article by Damarla et al⁴ in this issue of *RESPIRATORY CARE* highlights some of the problems that we see in COPD. Damarla et al found that in their hospitalized population, among patients who carried a “diagnosis” of COPD and/or congestive heart failure, a minority of only 31% of the patients with “COPD” had any evidence of pulmonary function testing done during the 8 years prior to the hospitalization, whereas 78% of patients with “congestive heart failure” had had an echocardiogram.

It seems reasonable that patients who show up at either their physician’s office or the hospital with a complaint of chronic respiratory symptoms or evidence of hypoxemia should, at some point in their evaluation, have spirometry performed. Yet, as was demonstrated in the study,⁴ physicians seem to be willing to make a diagnosis of COPD in the absence of spirometric data confirming this diagnosis in almost 70% of these patients. While it is possible that some patients in this analysis may have had testing outside of Damarla’s hospital system or that this hospitalization was their disease-defining event, the differences in confirmatory testing between patients with a diagnosis of COPD and those with a diagnosis of congestive heart failure remain striking.

The low utilization of spirometry is problematic in several ways. Many patients who have COPD, particularly in its milder and more treatable stage, are not tested, because spirometry is under-utilized.⁵ Patients with a diagnosis of COPD may, based on spirometry, be treated inappropriately; some patients may not have COPD at all, while other patients may be overtreated or under-treated.^{3,6,7} In the Damarla et al paper,⁴ 30% of the patients with a clinical diagnosis of COPD had either normal spirometry or evidence of restriction.

What are the reasons for the under-utilization of spirometry? There are a variety of potential explanations. One relates to accessibility. Spirometry is, in general, not

being done in physician’s offices.⁵ Past efforts to increase the use of spirometry in the generalist’s office have had limited success and have resulted in poor-quality data.^{8,9} New-generation, portable spirometers with built-in quality-control measures may mitigate some of these problems.¹⁰ These spirometers have been used in field studies and have produced high-quality data.¹¹

Another reason for low utilization is that the procedure is effort-dependent and relies on a cooperative patient for interpretable results. This can be contrasted with an echocardiogram, which requires no such cooperation and can even, for example, be done on a patient who is comatose and on a ventilator. Measurement of lung function has substantial challenges related both to obtaining results of reasonable quality and being sure that physicians can correctly interpret whether the spirometry quality is appropriate and what the results may mean.^{12,13}

In addition, even when spirometry is easily available, physicians have been unwilling to order testing. The reasons for this are complex and may relate to the perception that the only intervention for COPD is smoking cessation or that a person who does not smoke could not possibly have COPD.¹⁴ Changes in the treatment of other diseases may impact more routine spirometry use. For example, patients wanting to be treated with inhaled insulin will require baseline and follow-up spirometry because of the documented effects of this treatment on lung function.¹⁵

At an absolute minimum, any person who carries a diagnosis of COPD should have a spirometry done.⁷ The recent Agency for Healthcare Research and Quality report on “Use of Spirometry for Case Finding, Diagnosis and Management of COPD,” while recommending against routine testing of the adult population, did conclude that spirometry “improves COPD diagnostic accuracy” and that it “is a useful diagnostic tool in individuals with symptoms suggestive of possible COPD.”¹⁶ Patients reporting dyspnea (which probably composed a large proportion of the patients in the Damarla et al study with a COPD diagnosis) should have spirometry done, as should patients with other chronic respiratory symptoms. The important role of this testing is to establish a correct diagnosis and to serve as a guide for therapy. Until the medical community attains this goal, we are providing less than adequate care to our patients.

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