



ARCHIVOS DE BRONCONEUMOLOGIA

www.archbronconeumol.org



Editorial

Quality of Forced Spirometry in Primary Care, Impact on the COPD Treatment

La espirometría forzada de calidad en Atención Primaria, impacto en el tratamiento de la EPOC

Felip Burgos

Servicio de Neumología, ICT, Hospital Clínic, Barcelona, Spain

Spirometry is an essential test in the diagnosis, monitoring and management of respiratory diseases. Likewise, the reduction of forced vital capacity (FVC) has been related with greater mortality in cancer, cardiac pathologies¹ and lower survival rates in adults with respiratory symptoms or disease.^{2,3} This goes to show that John Hutchinson in 1846 was right on the mark when he defined this parameter as "vital" capacity.

Respiratory diseases that run their course with airway obstruction, especially chronic obstructive pulmonary disease (COPD) and asthma, are extremely prevalent. Despite their morbidity and mortality and the important consumption of resources involved in their management, both diseases are underdiagnosed, up to more than 70% in COPD as shown in a recent study in Spain.⁴

The diagnosis of COPD is based on the detection of airway obstruction and one of the most useful tools for its determination is the implementation of spirometry in Primary Care (PC). Several studies show the usefulness of spirometry to detect subjects at high risk for developing COPD,^{5,6} but few analyze the impact of spirometry in the treatment of COPD.⁷ In this issue of *Archivos de Bronconeumología*, M. Monteagudo et al⁸ analyze the impact of spirometry testing in the standard clinical practice of COPD in Primary Care and how it influences COPD treatment. Twenty-one centers intervened in this cross-sectional observational study with the participation of 801 patients, for whom only 53% of spirometries were available, FEV₁ being the only parameter. Thus, it was impossible to correctly stratify the patients into degrees of severity, a limitation that was admitted by the authors of the study.

Once again, the underuse of spirometry in the diagnosis and follow-up of COPD is revealed. Only in half of the patients was COPD diagnosis confirmed by forced spirometry and there was evidence of great variability in its use between the 21 centers that participated in the study. This diversity was also studied in the audit that Pellicer et al⁹ carried out in 10 hospitals in the province of Valencia that diagnosed COPD. Fifty-four percent of the patients with COPD diagnosis did not undergo spirometry before hospital discharge. This study also states that COPD diagnosis in the hospital setting does not meet the minimal standard of acceptable quality of care, stating that

there are great differences in the diagnostic management of this disease between the different specialists and levels of health-care.

M Monteagudo et al⁸ associated the use of spirometry with better patient control, although they did not associate it with an integral approach to the disease, as recommended by the clinical guidelines. Patients with spirometry presented more registered exacerbations but, however, a lower number of hospitalizations. This could explain why the authors defend better follow-up and registry of this group of patients. The majority of the patients had follow-up visits with their general practitioner in Primary Care, whereas 35% were controlled by the nursing staff. It was confirmed that being controlled by a pulmonologist and/or nurse was positively associated with follow-up spirometries.

Another aspect to highlight is that 38% of patients who were smokers had not received any type of anti-smoking advice and had less follow-up spirometries. Even lower is the percentage of patients who received "healthy lifestyle" advice on diet, exercise, etc. When the authors evaluated the treatment, they found a greater use of short-acting β -2-adrenérgics in patients without spirometry (60 vs 52%) and (70 vs 63%) in the use of glucocorticoids. The authors could not analyze the quality of the spirometry, and it must be noted that in many cases only FEV₁ is registered. Moreover, each spirometer had its own reference values and no data was provided as to whether the spirometers were subjected to any type of quality control. This all goes to show that, as the authors highlight, quality health care standards are far from being reached in COPD.¹⁰

In spite of national¹¹ and international¹² clinical guidelines recommending the use of forced spirometry as a diagnostic tool in COPD, it is not only underused in all healthcare settings, but many times it is not adequately utilized. This was demonstrated in the study by M. Monteagudo et al,⁸ where the minimal values of spirometry (FVC, FEV₁ and FEV₁/FVC ratio) could not be compiled, nor were data for bronchodilators, and in many instances it was not known which reference values were used while only percentage FEV₁ values were collected.

The healthcare challenge is early diagnosis of respiratory diseases, especially in those with greater prevalence like COPD and asthma. The dissemination of quality spirometry is an objective within our reach in the near future, but quality controls must be implemented in order for spirometry to be a reliable exploration, where both

E-mail address: fburgos@clinic.ub.es

numerical and graphic data can be accessed. We must strive for a more extensive use of spirometry in all healthcare settings, without sacrificing quality.

The growing impact of information and communication technologies (ICT) in medicine is a reality, and there is no doubt that spirometry will not lie outside these technological changes.¹³ It is necessary for spirometry to occupy its deserved place in clinical histories, due to both its historical and clinical use. Only by integrating lung function in computerized registers can we guarantee adequate quality control, and the expansion of spirometry as a basic tool for the evaluation of health.

References

- Mannino DM, Buist SA, Petty TL, Enright PL, Redd CS. Lung function and mortality in the United States: data from the First Matinal Health and Nutritional Examination Survey follow-up study. *Thorax*. 2003;58:388-93.
- Burney PGJ, Hooper R. Forced vital capacity, airway obstruction and survival in a general population sample from the USA. *Thorax*. 2011;66:49-54.
- Lee HM, Le H, Lee BT, López VA, Wong ND. Forced vital capacity paired with Framingham Risk Score for prediction of all-cause mortality. *Eur Respir J*. 2010;36:1002-6.
- Soriano JB, Ancochea J, Miravittles M, García-Río F, Durán-Tauleria E, Muñoz L, et al. Recent trends in COPD prevalence in Spain: a repeated cross-sectional survey 1997-2007. *Eur Respir J*. 2010;36:758-65.
- Naberan K, de la Roza C, Lamban M, Gobartt E, Martín A, Miravittles M. Use of spirometry in the diagnosis and treatment of chronic obstructive pulmonary disease in primary care. *Arch Bronconeumol*. 2006;42:638-44.
- Castillo D, Guayta R, Giner J, Burgos F, Capdevila C, Soriano JB, et al. FARMAEPOC group. COPD case finding by spirometry in high-risk customers of urban community pharmacies: a pilot study. *Respir Med*. 2009;103:839-45.
- Dales RE, Vandemheen KL, Clinch J, Aaron SD. Spirometry in the primary care setting: influence on clinical diagnosis and management of airflow obstruction. *Chest*. 2005;128:2443-7.
- Monteagudo M, et al. Variabilidad en la realización de la espirometría y sus consecuencias en el tratamiento de la EPOC en Atención Primaria. *Archiv Bronconeumol*. 2011;47:226-33.
- Pellicer C, Soler-Cataluña JJ, Andreu A, Bueso J. Calidad del diagnóstico de la enfermedad pulmonar obstructiva crónica en el ámbito hospitalario. *Arch Bronconeumol*. 2010;46:64-9.
- Soler-Cataluña JJ, Calle M, Cosío BG, Marín JM, Monsó E, Alfageme I, Comité de Calidad Asistencial de la SEPAR; Área de Trabajo EPOC de la SEPAR. Estándares de calidad asistencial en la EPOC. *Arch Bronconeumol*. 2009;45:196-203.
- Peces-Barba G, Barberà JA, Agustí AGN, Casanova C, et al. Guía clínica SEPAR-ALAT de diagnóstico y tratamiento de la EPOC. Available from: <http://www.separ.es/publicaciones/normativas.html>. *Arch Bronconeumol*. 2008;44:271-8.
- Pauwels RA, Buist AS, Calverley PM, Jenkins CR, Hurd SS, GOLD Scientific Committee. Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease. NHLBI/WHO Global Initiative for Chronic Obstructive Lung Disease (GOLD) Workshop summary. *Am J Respir Crit Care Med*. 2001;163:1256-76.
- Telemetric developments in respiratory monitoring. J. Roca, B. Vallespín, F. Burgos. *The Buyers' Guide to Respiratory Care Products*, 2008.