



PRO AND CON EDITORIALS

The light at the end of the tunnel: is COPD prevalence changing?

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Chronic obstructive pulmonary disease (COPD) is, and will remain, a global health problem as far as we can prognosticate. In the developed world (in contrast to the other big killers: coronary artery disease, cancer and cerebrovascular accident) COPD has the dubious honour of maintaining unabated and continued growth [1, 2]. Because the transfer of wealth from more developed to lesser developed countries is associated with a shift in the health pattern of those societies to resemble that of the richer ones, it is only reasonable to expect similar changes in the causes of death over time in the most populated parts of our globe. The completion of spirometrically defined surveys in different parts of the world, through the PLATINO project in Latin America [3] and the Burden of Obstructive Lung Disease (BOLD) initiative [4], have provided a cross-sectional picture of the state of the world with regard to COPD, which can be summarised as follows: COPD is highly prevalent, its prevalence varies by regions, and whether it is due to cigarette smoking or environmental exposure COPD is consistently under-diagnosed, under-treated and its research under-funded. There is no epidemiologically sound longitudinal follow-up of populations that can provide an accurate picture of the success, or failure, of the efforts that over the past decades have been made to prevent and treat COPD.

While estimates based on data modelling present a very bleak picture of the effect of COPD on society [2], this issue of the *European Respiratory Journal* provides, for the first time, some data from two different cross-sectional studies at two different time-points, directed at determining the prevalence of COPD in different regions of Europe [5, 6]. As the permanent optimist that I am, the results from both studies indicate to me that the glass is half full and that there is cautious reason for hope.

The first of the two studies was conducted in Spain and reported by SORIANO *et al.* [5]. This group re-analysed the data of two cross-sectional population-based studies conducted 10 yrs apart. The first one, the IBERPOC study (n=4,030), was conducted in 1997, and the second, the EPI-SCAN study (n=3,802), was completed in 2007. Poorly reversible airflow obstruction compatible with COPD for the two studies was defined according to the old European Respiratory Society (ERS) definitions. The estimated COPD prevalence in the population 40–69 yrs of age dropped from 9.1% (95% CI 8.1–10.2) in 1997 to 4.5% (95% CI 2.4–6.6), a hard to believe 50.4% decline. In

addition, using the Global Initiative for Chronic Obstructive Lung Disease/American Thoracic Society/ERS staging system the authors documented that the distribution of COPD prevalence by severity also changed from 38.3% mild, 39.7% moderate and 22% severe in 1997 to 85.6% mild, 13% moderate and 1.4% severe in 2007; and in the 40–69 yr EPI-SCAN sub-sample to 84.3% mild, 15% moderate and 0.7% severe. In addition, the under-diagnosis was reduced from 78% to 73% (nonsignificant) and under-treatment from 81% to 54% (p<0.05) within this 10-yr epoch. Unfortunately, the proportion of subjects reporting being smokers had increased from 25% to 29% over the 10 yrs, but the total pack years of smoking had decreased from an average of 36 to 25 pack-yrs.

The second of the studies was completed in Finland and reported by VASANKARI *et al.* [6]. They compared the prevalence rates and the potential determinants of COPD in two population surveys performed 20 yrs apart. The first one, conducted in 1978–1980, included 6,364 subjects with acceptable spirometry aged 30–74 yrs. The second survey, conducted 20 yrs later (2000–2001), included 5,495 participants of similar age groups. Airway obstruction was defined as ratio of forced expiratory volume in 1 s (FEV₁) to forced vital capacity below the lower limit of normal, and staged for severity on the basis of FEV₁ % of predicted. The age-adjusted prevalence rates of obstruction were rather similar in both surveys in males (4.7% *versus* 4.3%; p=0.25), but almost significantly higher in the latter survey in females (2.2% *versus* 3.1%; p=0.06). The rates of COPD stage II or higher were 3.9% in 1978–1980, and 3.6% in 2000–2001 (p=0.36) for males, and 1.4% and 1.5% (p=0.93) for females, respectively. Overall, no significant difference in the prevalence of COPD stages II–IV was observed between similar population-based surveys 20 yrs apart. In this study, the proportion of smokers had decreased significantly from 38% to 34%. An evaluation of the factors associated with presence of airflow limitation included age, smoking, low body mass index (BMI), low educational level, history of asthma and tuberculosis.

The two studies are far from perfect in that they were not planned and conducted under a longitudinal follow-up design, no bronchodilators were used in the Finnish study, different spirometers were used in the Spanish study and the definition of obstruction and predictive values differed not only in the two studies but also in between the surveys at the two sites. In spite of that, the findings provide information that appears common to both studies. First, the prevalence of COPD appears to be stabilising or even decreasing. Unfortunately,

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this is clearly the case for males while it is alarming that it is not true for females. Secondly, most of the detected cases represent patients in the milder stages, where the gain of primary and secondary prevention and the response to treatment may be greatest. Thirdly, the basic anthropometrics of the two populations had changed over time. In both countries, the height increased by 3 cm, the BMI was higher and, at least in the study where it was evaluated (the Finnish study), the history of previous tuberculosis was significantly lower. Perhaps a better overall health status in the new generations will make environmental challenges easier to bear. An interesting positive finding reported in the Spanish study is that the more severe cases are being diagnosed and treated. Perhaps the efforts directed at diagnosing and treating COPD is beginning to bear fruit.

What can we learn, and where do we go from here? The two studies highlight the difficulties in comparing repeated cross-sectional surveys of spirometry in populations. This difficult task is made even more difficult if the surveys are not conducted under the same overall plan and with similar techniques and basic tools. In addition, studies need to be well supported by granting agencies, in order to have better chances of objective success. The titanic efforts of PLATINO [3] and BOLD [4] and their undisputably impressive results are due to a group of dedicated researchers primarily funded by industry. Contrast this to the wealth of information that has been generated by well-funded and manned studies, such as that of the Framingham cohort, which has been provided significant public funds over decades [7]. Similar efforts in the area of COPD should reap the same benefits. Such an endeavour would improve COPD outcomes in the same way that the knowledge gained from the continued follow-up of the Framingham cohorts has resulted in improved outcomes in cardiovascular diseases. The two studies reported in this issue of the *European Respiratory Journal* provide arguments that we can be cautiously optimistic. The past two decades have seen a decisive effort to

clean the air in most developed countries and to combat diseases such as tuberculosis that can result in worsened airflow obstruction. In the Western World, smoking prevalence is declining and in societies that have utilised comprehensive methods to combat tobacco use, such as in the USA, the prevalence stands at an all-time low of 20% [8]. The road is long and full of obstacles but the results of these Spanish and Finnish studies perhaps indicate that for COPD, there is a glimmer of light at the end of the tunnel. Let us keep our hopes up and continue our fight against this obstinate killer.

STATEMENT OF INTEREST

None declared.

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