

CORRESPONDENCE

The Diagnosis of Chronic Obstructive Pulmonary Disease

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The Preserve of Primary Care Physicians

The early diagnosis of chronic obstructive pulmonary disease (COPD) is the preserve of primary care physicians. Too often, COPD is discovered only at an advanced stage. Dyspnea, cough, and expectorate rarely lead to an early diagnosis because they are rarely experienced as symptoms of a disease or are expressed spontaneously.

The value of lung function testing has been confirmed for a long time, in numerous studies, for example, in comparison to ECG and thoracic radiography (1) or in patients with a healthy respiratory tract (2). Under these premises, lung function testing is undertaken far too rarely. The reasons include the lack of familiarity with lung function testing as a routine investigation during medical training, compared with other investigative modalities, and the lack of a billing option. Bronchospasmolytic testing is not undertaken routinely either. Many early forms of a ventilation disorder thus escape diagnosis because it is often only this test that initially identifies a ventilation disorder. Spirometry as a screening exam in smokers fails because of the number of necessary investigations and the lack of a billing option.

The indication for a lung function test could be made in a more targeted fashion if attention were given to the following indications of potential COPD: an obstructive course of an acute respiratory infection is seen almost exclusively in smokers or persons with allergies. The frequency of common infection is apparently identical in persons with a healthy respiratory tract and in those with damaged airways; by contrast, bacterial infections affect persons with damaged airways to a greater extent (3). Those with damaged airways experience bacterial infections once or several times every year, whereas persons with healthy airways contract such infections only at intervals of several years. Women with COPD contract bacterial respiratory infections more often than men with COPD. In persons with a healthy respiratory tract, this is exactly the other way round. The frequency of bacterial infections increases from non-smokers to former smokers to current smokers.

The early diagnosis could be more successful if the indication for lung function testing was defined in a more targeted way. Simultaneously it would be possible to reduce the number of investigations. Lung function testing is indicated especially in persons with obstructive bronchitis and in those experiencing bacterial airway infections at least once every year, especially where women and/or smokers (active/passive) are concerned.

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Occupational Preventive Measures

Burkhardt and Pankow are right to point out the late diagnosis of chronic obstructive pulmonary disease (COPD) in clinical practice (1), but unfortunately they do not discuss the options regarding occupational measures for the early detection and prevention, nor the results thereof. A retrospective evaluation of a COPD screening initiative in a large waste disposal company statistically analyzed COPD questionnaires and lung function test results from 645 volunteer participants under occupational medical aspects (2). On checking the questionnaire data it immediately became obvious that in active smokers, a “regular cough with or without expectorate” did not register consciously as a disease symptom or had even be redefined as the normal state of affairs. Such a subjective misjudgment also contributes substantially to delays in diagnosis in the general practice setting. The cited 50% of non-diagnosed COPD patients in general practice therefore seem to indicate the underestimate of the addressed COPD problem.

No unequivocal signs were noted, however, for a clustering of symptoms suspected of indicating COPD in occupational areas with particular exposures to dust, such as waste disposal. Rather, in analogy to the general population, individual characteristics took priority, such as active smoking status, sex, and age. The high rate of smokers (42%) in the study cohort was visibly exceeded by the 90% of smokers among the employees identified as having suspected COPD.

The high acceptance of such health initiatives by employees from all sectors emphasized the advantages of a setting that is not associated with illness and can contribute to avoiding a late diagnosis. The occupational setting provides low-threshold access to preventive (occupational) medical diagnostic evaluation by an occupational physician, in contrast to actively seeking a GP consultation when required. Information about potential COPD patients in a company enables not only a targeted risk-assessment and an opportunity to initiate necessary workplace-related protective measures, but it also provides an opportunity for the most important individual preventive measures for COPD: smoking cessation and nicotine withdrawal programs.

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Diagnosis Is Difficult

The difficult diagnosis of chronic obstructive pulmonary disease (COPD) is full of traps for non-pulmonologists and is intellectually demanding in terms of its pathophysiology. For this reason, the authors deserve praise for attempting to explain this complex subject matter in as simple a way as possible. However, in my opinion, they did not succeed in doing this in Figures 3 and 4. The depicted ideal flow-volume curves are pathophysiologically shortened, as they do not relate to the absolute lung volume. This means that the influence of the increases in lung volume that cause dyspnea cannot be identified in persons with advancing disease. This insight was meant to be given by Figure 4, where the static volumes are intended to explain this problem. However, the sub-units in this figure hide any clue of how grotesquely high the total capacity is in pronounced obstruction, compared with the very low capacity in restriction. The figure legend “Note the similarity of the spirometrically measured volumes in restrictive disease and emphysema” is confusing, because this error could be avoided if the differences in total capacity were displayed.

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In Reply:

Hausen's comments have strengthened our intention to use lung function testing in primary care more often for the early diagnosis of chronic obstructive pulmonary disease (COPD). His comment, that symptoms are often not articulated spontaneously and active prompting is required, is of particular importance. Frequent acute respiratory infections are among the clinical symptoms of COPD and should (especially in smokers) provide grounds for a spirometric examination. In smokers aged 40–75 and in former smokers without previously known bronchial or pulmonary disorders, spirometry at 4–5 weeks after an acute infection shows measurements that indicate COPD in about a quarter of cases. More than half of such patients have at least

moderately severe airway obstruction (1). According to what is currently known on the subject, however, screening examinations in asymptomatic smokers do not provide valid prognostic information or evaluated preventive treatment options. In our opinion, overdiagnosis is not in the patients' interests. Enough arguments exist in support of the health benefits of abstaining from nicotine. Furthermore, we do not support routine bronchospasmolytic testing in patients with normal results on spirometry. An increase in FEV₁ after inhalation of a bronchodilator is physiologic (the mean is 139 mL in healthy non-smokers), since the basal tone of the smooth bronchial muscles is lowered (2). Indications of sex-associated differences in symptoms and in the course of COPD require further research. Currently, the differences have been confirmed to a rather unsatisfactory degree, and a sex-specific diagnostic approach cannot be deduced (3). We do not follow the comment about a lack of a billing option and refer our correspondents to No 03330 in the uniform assessment standard and 605/605a of the medical fee schedule.

Spallek rightly points out the opportunities inherent in the low-threshold access of occupational medicine to smokers. We wish to add the following: this is also relevant for the hospital setting because the prevalence of smokers is particularly high. Our occupational physician at the Neukölln Hospital participates in this preventive mission in an exemplary fashion, not only by providing individual advice to colleagues who smoke, but also through her collaboration in our working group on the topic of “smoke free hospital”.

Sybrecht reminds us of the importance of pulmonary over-inflation for the understanding of dyspnea in COPD. Spirometry is subject to the disadvantage of capturing only mobilizable lung volumes. Low spirometric volumes in COPD are often misinterpreted as restrictive ventilation disorders in clinical practice. It is the intention of our Figure 4 to clarify this fact and to visualize the larger residual volume as the “iceberg beneath the waterline.” The total capacity of the column marked as “severe emphysema” is therefore also marked notably larger.

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Conflict of interest statement

The authors of all contributions declare that no conflict of interest exists.