Clinical Review

Evidence based Guidelines in COPD Management and Current Treatment Options

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Chronic Obstructive Pulmonary Disease (COPD) is a condition of increasing public health significance. According to WHO estimates, COPD will rank 5th on the global burden of disease in terms of disability adjusted life years (DALY's) by the year 2020 (1). COPD is an insidiously developing disease, in which clinical symptoms are presumed to be preceded by an asymptomatic decline in lung function. This may lead to an iceberg phenomenon in which a considerable proportion of COPD patients remains undiagnosed until advanced stage of disease. Most published data on the epidemiology and treatment of COPD deal with populations with severe to very severe disease, focussing on secondary levels of care, representing the surfacing part of the iceberg of COPD patients. However, in primary care practices we will encounter merely patients with more mild disease as measured by spirometry. The GOLD (Global Initiative for Chronic Obstructive Lung Disease) initiative has developed a classification of the disease based on the impairment in level of lung function. GOLD I meaning mild disease (FEV_1 > 80% predicted) GOLD II meaning moderate disease (FEV_1 > 50% but < 80%) GOLD III meaning severe disease (FEV_1 > 30% but < 50%) and GOLD IV very severe disease (FEV_1 < 30%). Based on the airflow limitation the GOLD committee recommends to treat patients in GOLD I and II with bronchodilators such as short or long acting beta agonists and/or the anticholinergics ipratropium bromide or tiotropiumbromide. (www.GOLDCOPD.com)(1). In addition to those patients with more severe disease (GOLD III and IV) especially when they suffer from frequent exacerbations should also be treated with high dose inhaled corticosteroids. The GOLD-committee recognizes that defining the severity of COPD by the level of airflow limitation alone does not cover the full spectrum of COPD. Other variables of relevance to the classification of COPD include measurements of symptoms, health status, smoking history, body mass index, physical condition, airway inflammation, findings on pulmonary CT-scans, and the frequency of exacerbations.

Health status has become a central feature of studies in COPD in recent years because the treatments for the condition are largely symptomatic, and clinical trials are now required to incorporate a symptomatic measure. The importance of the evaluation of health status in COPD has been demonstrated by a primary care study that shows the poor correlation between health status and FEV_1. (Figure 1)

Poor scores on health status, are strongly associated with mortality, hospital readmission and increased healthcare resource consumption.(2-5) For primary care, health status might even be more important as an alternative or secondary determinant of

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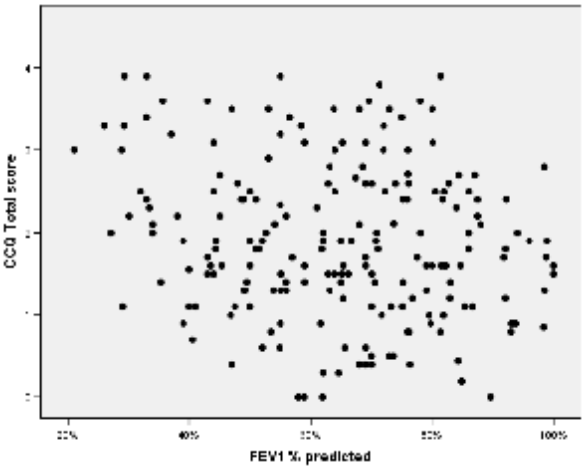
severity, since the evidence for treatment of patients with mild and moderate disease (GOLD I and GOLD II) is scarce. Therefore the treatment of patients with mild disease largely depends on the clinical impact of the disease on the patients which is reflected by the health status. This has led to the need for a short and validated method to measure health status in order to assess clinical control in daily clinical practice. The Clinical COPD Questionnaire (CCQ) has been developed to address this need(6;7). (figure2)

Figure 1: Relation between health status as measured by the Clinical COPD Questionnaire ((CCQ) range between 0 (best)-6(worst)) and



FEV_1 in patients with COPD (Tiffenau< 70%) . Each dot(n=203) represents one patient.

With measuring health status on top of spirometry, primary care has an extra tool to support the clinical decisions that have to be made to give the best available treatment to the patients. Primary care physicians have to be aware that despite the lack of evidence in patients with mild disease these patients have the right of an optimal treatment. A decision making tree such as proposed in figure 3 may help the primary care physician to evaluate his clinical decision or may support the nurse or nurse practitioner in proposing COPD management plan based on both the GOLD severity but also the needs of the patient as expressed by health status. The most important advantage of such a decision tree is that the treatment plan of each patient is strongly individualised, based on both the lung function impairment and the patient health status. Moreover, the health status as measured with the CCQ is divided in its three important clinical domains, symptoms, mental health and functional status. Although the overall score of the CCQ reflects the general impact of the disease on patient's health status, the individual domains gives us additional information that is very useful in our clinical decision making. Patients with COPD who report a high score on the symptom domain (cough, sputum, dyspnea in rest and during exercise) as compared to the other domains, very often have these symptoms due to their current smoking behaviour. Therefore smoking cessation is the first option next to pharmaceutical treatment. Patients who report a high score on the mental health domain (fear for exacerbation and feeling depressed) probably deserve extra attention for the treatment of a depression or anxiety disorder. Last but not least patients who report a bad functional status (exercise and daily functioning limitation) should be encouraged to do at least some exercise or be referred for pulmonary rehabilitation. All these suggestions are of course next to the pharmaceutical treatment as recommended by the GOLD guidelines.

Conclusion: With incorporating both lung function measurement and health status in the diagnosis and evaluation of COPD in primary care we are able to individualise the treatment of COPD and make a more appropriate management plan. This method may result in better outcomes for the patient with COPD without burdening the health care system or the individual primary care physician.

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Figure 2: The English version of the Clinical COPD Questionnaire (CCQ) Translations available on www.ccq.nl.

Patient number:
Date:

CLINICAL COPD QUESTIONNAIRE

Please circle the number of the response that best describes how you have been feeling during the past week. (Only one response for each question).

On average, during the past week, how often did you feel:	never	hardly ever	a few times	several times	many times	a great many times	almost all the time
1. Short of breath at rest?	0	1	2	3	4	5	6
2. Short of breath doing physical activities?	0	1	2	3	4	5	6
3. **Concerned** about getting a cold as your breathing getting worse?	0	1	2	3	4	5	6
4. **Depressed** (down) because of your breathing problems?	0	1	2	3	4	5	6
In general, during the past week, how much of the time:							
5. Did you cough?	0	1	2	3	4	5	6
6. Did you produce phlegm?	0	1	2	3	4	5	6
On average, during the past week, how limited were you in these activities because of your breathing problems:	**not limited at all**	**very slightly limited**	**slightly limited**	**moderately limited**	**very limited**	**extremely limited**	**totally limited (or unable to do**
7. **Strenuous physical activities** (such as climbing stairs, hurrying, doing sports)?	0	1	2	3	4	5	6
8. **Moderate physical activities** (such as walking, housework, carrying things)?	0	1	2	3	4	5	6
9. **Daily activities at home** (such as dressing, washing yourself)?	0	1	2	3	4	5	6
10. **Social activities** (such as talking, being with children, visiting friends/ relatives)?	0	1	2	3	4	5	6

Figure 3: Decision tree for patients with COPD in primary care based on both health status outcome as measured by CCQ (range 0 (best)-6 (worst)) and GOLD stage.