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Assessment of COPD in primary care: new evidence supports use of the DOSE index

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Recent modifications of the GOLD recommendations emphasise the importance of assessing symptoms or health status, in addition to lung function and exacerbation frequency, in order to produce a more comprehensive view of the COPD patient.[1] There is, however, a difficult challenge in finding a convenient way of evaluating COPD in primary care where the majority of COPD patients are managed. In fact, the usefulness of the new GOLD categories in primary care has been debated.[2]

The article by Rolink and colleagues[3] in this issue of the *PCRJ* shows that the recently described DOSE index is predictive of change in health status measured by the Clinical COPD Questionnaire (CCQ). This finding increases the potential value of the DOSE index, which has

already demonstrated its clinical usefulness.

The MRC scale is a well-known instrument for estimating the important symptom of dyspnoea due to physical activity in COPD patients. In a study from 2002, the MRC scale was shown to be a more effective predictor of mortality than lung function in COPD.[4] However, the multisystem complexity of COPD has resulted in a requirement for comprehensive instruments that can take into account several aspects of the disease. The term health status covers not only symptoms but the broader influence of disease on daily activities and wellbeing.[5] The St George's Respiratory Questionnaire (SGRQ), a disease-specific instrument originally developed to evaluate health status,[6] is often used in clinical trials as a gold standard for evaluating health-related quality of life (HRQL) in respiratory diseases. As HRQL reflects the general impact of a disease on a patient's wellbeing, the terms HRQL and health status are very closely related and often used synonymously.

However, the SGRQ is an extensive instrument that can be time-consuming to complete, making it inconvenient to use in clinical practice. More recently, shorter instruments have been developed. In 2005, the CCQ was introduced as a convenient instrument for measurement of health status; it includes ten items about symptoms, emotional dysfunction and limitations of physical activity.[7] It correlates well with the SGRQ, with the Chronic Respiratory Questionnaire (CRQ), and the generic instrument Short form-36 (SF-36),[7,8] and is practical to use in primary care.[9] In 2009, the COPD Assessment Test (CAT) was developed, and this includes eight items on symptoms, activities and other impacts of COPD on health status.[10] In the most recent GOLD update, both the CAT and CCQ scores are recommended for clinical evaluation of health status in COPD patients.[1]

In primary care, there is clearly a need for simple tools which can present as much clinically relevant information on the disease as efficiently as possible. Jones and colleagues developed the Dyspnoea, Obstruction, Smoking and Exacerbation (DOSE) index with a view to combining information relevant for both clinical management and assessment of disease severity.[11] Other multidimensional instruments, like the BODE index (BMI, Obstruction, Dyspnoea and Exercise capacity)[12] and the ADO index (Age, Dyspnoea and Obstruction),[13] also

have the advantage of reflecting several aspects of COPD. However, the BODE index includes the Six Minute Walking Distance test for measuring exercise capacity, which limits its practicality for use in primary care. The DOSE index includes clinically relevant and easily collected information, and importantly, several of its measurable components can be modified by interventions, which is an advantage in comparison with the ADO index.

Previously the DOSE index has been shown to predict the risk of exacerbations, hospital admissions, respiratory failure and mortality.[11,14,15] Rolink and colleagues have now shown that the DOSE index is also able to predict changes in health status as measured by the CCQ.[3] In a study population of 209 patients, with 54% from primary care, a DOSE index score of $\geq$4 was a statistically significant predictor of clinically significant worsening in CCQ score over a two-year follow-up period. Stratification by level of care revealed that the instrument was most predictive among primary care patients. This association has not previously been shown in a prospective study. Interestingly, a comparison with FEV_1% predicted showed that the lung function component alone was not significantly associated with either change in CCQ or referral to secondary care. The study is well designed, with strengths including lung function data on all patients – which is not always possible in clinical COPD research – and statistical modelling that examines the degree of change during follow-up while taking into account baseline values.

These results emphasize the clinical usefulness of the DOSE index in primary care. We fully agree with the authors' remarks about the importance of future research focusing on prevention of health status deterioration among high-risk individuals.

Assessment of COPD should include clinically relevant measures that can be influenced by intervention, and also information on the risk of future health status deterioration and mortality. The present study by Rolink et al.[3] adds important evidence that the DOSE index predicts change in health status. The DOSE index appears to combine all the required aspects and is also convenient to administer. Its use in the clinical management of COPD patients is very appealing, particularly in primary care.

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