Identification and Management of Mild COPD Patients

It is currently estimated that over three million people in the UK have chronic obstructive pulmonary disease (COPD) and that an estimated two million people have undiagnosed COPD, among whom it is considered that 5.5% will have COPD at the mild end of the spectrum. COPD is often not diagnosed until there are clinical symptoms and the disease is moderately advanced; at this stage lung damage is irreversible.

Patients with mild airflow limitation may not realise they have COPD; indeed in many cases the insidious and slow progression of COPD means that patients may not realise they have a problem. They may believe that their cough is ‘normal’. Up to 70% of COPD hospital admissions are patients who have never previously been admitted to hospital – it is likely that they were not aware that they were at risk of having COPD and in the category of mild patients. The cost per year to the NHS for treating severe patients is eight times more than that of treating mild patients.

What is mild disease?

Traditionally, severity of COPD has been equated with the severity of airflow limitation, but there is often a poor correlation between health status and lung function. As a consequence, the 2010 update to the NICE Clinical Guideline on COPD recognises that the principle of relying solely on FEV1 results does not give a true representation of the severity of the disease. As such NICE recommends that a true assessment of severity of COPD should include assessment of the degrees of airflow obstruction and disability, the frequency of exacerbations and the following prognostic factors: FEV1, TLCO, breathlessness (MRC scale), health status, exercise capacity, body mass index (BMI), partial pressure of oxygen in arterial blood (PaO2) and cor pulmonale.

Multiple item indices such as the BODE index (BMI, Obstruction-FEV1 % predicted, Dyspnoea-MRC score, Exercise Tolerance) and the DOSE index (Dyspnoea, Obstruction, Smoking, Exacerbation) can help assess the severity of COPD as well as give additional information on health status and prognosis. However these are not yet in common usage in primary care. At present ‘mild disease’ can be considered where:

- There is mild airflow obstruction e.g. the post-bronchodilator FEV1 % predicted ≥ 80% in a symptomatic patient together with MRC scale score < 3, and DOSE score < 3 with no exacerbations in the last year
- There is more severe airflow limitation in a patient with mild symptoms/minimal disability (where other potential causes of obstruction have been excluded).

How do you identify patients with mild disease?

Many patients with COPD remain undiagnosed (and therefore untreated) or are diagnosed in the late stages of the disease. A range of factors contribute to this (Table 1). Underdiagnosis and misdiagnosis can mean patients are untreated or they receive suboptimal treatment.

Recent studies suggest that lung function decline may be greater during earlier rather than later stages of the disease. Early detection of airflow limitation and early intervention can minimise further lung function decline in patients with mild disease, reducing the burden of future COPD symptoms.

Presentation of symptomatic patients with breathlessness and a cough. The NICE Clinical Guideline recommends that a diagnosis of COPD should be considered in patients over the age of 35, who have a risk factor (generally smoking) and who present with exertional breathlessness, chronic cough, regular sputum production, frequent winter ‘bronchitis’ or wheeze.

Case finding of high-risk patients (e.g. smokers over 35 years of age). Targeted, systematic case-identification in primary care may enable detection and management of high-risk patients. Guidance from NICE suggests that in order to identify early disease, spirometry should be performed in patients who are over 35, current or ex-smokers, and have a chronic cough. If results then indicate obstruction, post-bronchodilator readings should be obtained (please refer to the TMT: Spirometry and Lung Function for further information). Risks of developing COPD can also be assessed by taking a history or using validated screening questionnaires, such as the IPCRG COPD risk evaluation questionnaire.

What is the prognosis for mild disease?

Patients with symptomatic mild airflow limitation have a faster rate of decline of lung function, health status and health utilisation than asymptomatic patients with normal lung function and there is evidence that early intervention can improve prognosis. Many patients only present when the disease is advanced with limited options to improve health status. Optimal treatment of early disease can result in better outcomes and quality of life for the patient.
What are the management options for patients with mild disease?

The Primary Care Respiratory Society UK (PCRS-UK) has produced a patient-centred holistic management algorithm (Figure 1).11 This management algorithm encompasses pharmacological treatment, non-pharmacological treatment and the importance of holistic care. Smoking cessation is the main intervention to slow the progression of lung damage, but its benefits occur in early stages. There is little or no evidence that smoking cessation in later stages (GOLD stages III & IV) slows the disease progression.12 For all patients, a programme of smoking cessation advice, self-management advice, dietary advice, exercise promotion and annual vaccinations is advocated. However, most of these interventions may result in the best outcomes if prescribed in the early stages of the disease.

For patients with symptoms, pharmacological treatment can reduce the burden of COPD symptoms and improve quality of life, even in those patients with mild airflow limitation.13 Inhaled bronchodilator therapy is central to the symptomatic management of COPD and this is recognised in the latest update to the NICE Clinical Guideline on COPD (please see TMT: Basic guide to managing chronic stable COPD and Prescribing bronchodilators).

Patients with intermittent symptoms (breathlessness and functional limitation) should start on either an inhaled short-acting β₂-agonist (SABA), e.g. salbutamol or terbutaline, or a short-acting antimuscarinic agents (SAMA), e.g. ipratropium. These should be used as required to relieve breathlessness and exercise limitation.4 Either a long-acting β₂-agonist (LABA), such as salmeterol, formoterol or indacaterol, or a long-acting muscarinic antagonist (LAMA) such as tiotropium, glycopyrronium or aclidinium should be used in patients who remain symptomatic (e.g. breathless or having exacerbations), despite treatment with short-acting bronchodilators (see Figure 2).

Long-acting drugs appear to have additional benefits over combinations of short-acting drugs.4 In Figure 2, the steps relating to management of patients with mild/moderate airflow obstruction are highlighted in yellow. For those patients with moderate to severe disease, we now know that apart from long term oxygen therapy, no other intervention is likely to improve the prognosis in this group of patients. People diagnosed late may have been denied access to treatments such as pulmonary rehabilitation and inhaled therapies, which can reduce symptoms, improve health status and exercise tolerance. It is therefore critical to detect and treat people with symptomatic COPD at an early stage.

All patients with COPD should be monitored and reviewed at regular intervals. The aim of the review should be a movement towards proactive management (minimising future risk of exacerbations, hospital admissions and slowing disease progression) rather than reacting to individual symptoms and exacerbations. An annual review should be sufficient in patients with mild symptoms. The frequency of this can be increased if the patient starts to develop more severe symptoms and/or exacerbations.
**Figure 1 Holistic management of COPD**

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<tr>
<td>BREATHELESSNESS</td>
<td>Short-acting bronchodilators (β2-agonist or antimuscarinic) for relief of symptoms.</td>
<td>MRC score ≥ 3</td>
<td>(Oral steroids/antibiotics/hospital admissions)</td>
<td>Oxygen saturation ≤92% at rest on air</td>
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<td>PERSISTENT SYMPTOMS</td>
<td>See NICE pharmacotherapy algorithm</td>
<td>(Optimise pharmacotherapy see NICE pharmacotherapy algorithm)</td>
<td>Optimise pharmacotherapy</td>
<td>FEV1 &lt; 30% predicted</td>
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<td>PRODUCTIVE COUGH</td>
<td>Consider mucolytics</td>
<td>Offer pulmonary rehabilitation</td>
<td>Discuss action plans including use of standby oral steroids and antibiotics</td>
<td>Refer for oxygen assessment</td>
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**All Patients**

- Smoking cessation advice
- Patient education/self management
- Assess co-morbidity
- Assess BMI: Dietary advice if BMI >25
  Specialist referral if BMI <20
- Exercise promotion
- Pneumococcal vaccination
- Annual influenza vaccination

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COPD is a chronic disease that is frequently undiagnosed and untreated. It is now recognised that lung decline is faster in the earlier stages of the disease.

Mild disease can be considered where:
- There is mild airflow obstruction e.g. the post-bronchodilator FEV₁ % predicted ≥ 80% in a symptomatic patient or
- There is more severe airflow limitation in an asymptomatic patient or patient with mild symptoms/minimal disability.

Think of COPD diagnosis in patients, who are over 35 and are smokers or ex-smokers and have any of the following symptoms:
- Exertional breathlessness
- Chronic cough
- Regular sputum production
- Recurrent respiratory infections
- Wheeze

Case-finding of high-risk patients (e.g. smokers over 35 years of age) using a simple hand held spirometer or validated screening questionnaire can also enable detection and management of mild patients.

For all patients, a programme of smoking cessation advice, self-management advice, dietary advice, exercise promotion and annual vaccinations is advocated. However, most of these interventions may result in the best outcomes if prescribed in the early stages of the disease.

Patients with intermittent symptoms (breathlessness and functional limitation) should start on either a SABA or SAMA. These should be used as required to relieve breathlessness and exercise limitation. A LAMA or LABA should be used in patients who remain symptomatic.

Think about...
- What measurements are necessary to assess whether your patients have mild COPD?
- What management options are available for patients with mild COPD?

Glossary

Bronchodilator: a drug that relaxes and dilates the small airways and improves the passage of air into the lungs: FEV₁, forced expiratory volume in 1 second, the volume of air breathed out in that time from full lungs (a measure of lung function)

Use of inhaled therapies

Breathlessness and exercise limitation

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<td>SABA or SAMA as required*</td>
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<th>FEV₁ &lt; 50%</th>
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<td>Exacerbations or persistent breathlessness</td>
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<td>LABA + SAMA in a combination inhaler</td>
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<td>LAMA in preference to regular SAMA four times a day</td>
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<td>LABA + LAMA if ICS declined or not tolerated</td>
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<tr>
<td>LAMA Discontinue SAMA</td>
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<tr>
<td>Offer LAMA in preference to regular SAMA four times a day</td>
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<td>Consider LABA + LAMA if ICS declined or not tolerated</td>
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Abbreviations:
- SABA: Short-acting β₂ agonist SAMA: Short-acting muscarinic antagonist LABA: Long-acting β₂ agonist LAMA: Long-acting muscarinic antagonist
- "SABA (as required): may continue at all stages"
- "Offer therapy (strong evidence)"
- "Consider therapy (less strong evidence)"

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