

## The Management of Stable Chronic Obstructive Pulmonary Disease (COPD) in Primary Care

The aim of this opinion sheet is to provide concise advice, based on current international (GOLD<sup>1</sup>) and UK<sup>2</sup> guidelines, on the management of stable Chronic Obstructive Pulmonary Disease (COPD). It is known that significant improvements in patients' quality of life can be achieved by good primary care management of this disease.

### The Goals of COPD Management:

The Goals of COPD Management are stated in the International GOLD Guidelines<sup>1</sup> and are as follows:

- Prevent disease progression.
- Relieve symptoms.
- Improve exercise tolerance.
- Improve health status.
- Prevent and treat complications.
- Prevent and treat exacerbations.
- Reduce mortality.

Traditionally, the management of COPD has been based on the severity of disease as measured by the degree of airway obstruction (represented by FEV<sub>1</sub>). The NICE Guidelines on the management of COPD<sup>2</sup> recommend a multi-dimensional patient-centred approach to the assessment and treat-

ment of COPD reflecting the systemic effects of the disease. This approach has been adapted by the PCRS-UK<sup>3</sup> and IPCRG<sup>4</sup> and is shown in Figure 1.

### Management for all patients

The advice for all patients, even those who are asymptomatic, should be as follows:

1. Smoking cessation: Smoking cessation may halt disease progression and is known to improve mortality. Patients should be referred to practice- or locality-based smoking cessation services. Nicotine replacement therapy and oral bupropion should be considered, since these treatments can improve smoking cessation success rates.
2. Influenza and Pneumococcal Vaccination: Pneumococcal vaccination and an annual influenza vaccination should be offered to all patients with COPD.
3. Exercise Advice: All patients with COPD should be encouraged to exercise within the limits of any co-morbidity. Patients with mild disease should be considered for referral to local exercise promotion schemes and patients with disability should be considered for referral for pulmonary rehabilitation programmes.

### Management for symptomatic patients

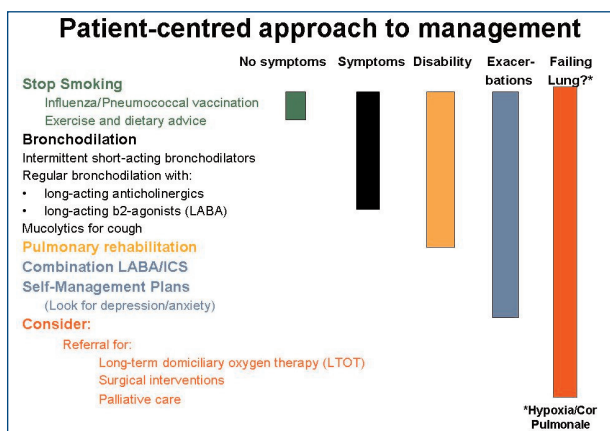
**Pharmacotherapy:** Most patients will cope with a hand-held inhaler device and rarely require nebuliser therapy. A spacer device may help delivery in patients using a pressurised metered dose inhaler (pMDI), especially during an exacerbation. Inhaler technique should be checked regularly; this is clearly important in COPD patients, many of whom may find some devices difficult to use.

**Intermittent breathlessness:** In patients with intermittent breathlessness a short-acting  $\beta_2$ -agonist bronchodilator (SABA) should be prescribed for relief of symptoms; examples include terbutaline and salbutamol and these have an onset of action within five minutes and last for 3-4 hours. Side-effects of SABAs include tremor or tachycardia in high doses and/or in susceptible patients.

Alternatively, a short-acting anti-cholinergic agent (ipratropium bromide) can be used; onset of action is within 30 minutes and lasts for 4-6 hours. The main side effect of inhaled ipratropium therapy is a dry mouth, although high doses admitted via a nebuliser can precipitate acute glaucoma. Combination of an anti-cholinergic agent with a beta-agonist can be additive.

**Persistent breathlessness:** In patients with persistent breathlessness, regular bronchodilation with a long-acting anti-cholinergic agent or long-acting  $\beta_2$ -agonist (LABA) can improve FEV<sub>1</sub> and FVC, reduce dynamic hyperinflation of the lungs, and hence reduce the work of breathing and improve exercise capacity.

Tiotropium bromide given once daily via a dry powder device has a long duration of action. It provides a



**Figure 1: Patient-Centred Approach to COPD Management<sup>3</sup>**

(Patients are assessed according to the criteria along the top of the chart. Corresponding treatment options are shown on the left hand side)

## Figure 2. Medical Research Council (MRC) Dyspnoea Scale Grade

Grade	Degree of Breathlessness related to activities.
1	Not troubled by breathlessness except on strenuous exercise
2	Short of breath when hurrying or waking up a slight hill
3	Walks slower than contemporaries on level ground because of breathlessness or has to stop for breath when walking at own place.
4	Stops for breath after walking about 100m or after a few minutes on level ground.
5	Too breathless to leave the house or breathless when dressing or undressing

sustained improvement in lung function, significant improvement in health status, and reduction in exacerbations (including hospitalisations) compared to four-times daily ipratropium bromide. The main side-effect of tiotropium bromide is a dry mouth.

LABAs are prescribed twice-daily. Examples include formoterol (available in dry powder devices) or salmeterol given via a pMDI or a dry powder device. The main side-effects of LABAs are tremor and palpitations.

Oral theophyllines are effective in relieving symptoms in people with COPD. However, because of their high risk side-effect profile, drug interactions, and the need to monitor blood concentration levels, inhaled therapy is preferred where available and if patients can use these.

Management of cough: Patients with distressing viscous sputum may be helped by a four-week trial of a mucolytic agent - carbocisteine or mecysteine. Erdosteine is a mucolytic with anti-oxidant properties and is licensed for the treatment of exacerbations with productive cough. Physiotherapy may also help this group of patients.

### Patients with a Disability

When patients have restriction in their ability to carry out daily activities (usually those patients with an MRC dyspnoea score of 3 or above - see Figure 2) they should be referred for pulmonary rehabilitation which is a multidisciplinary programme of exercise, disease education and counseling. Typical

programmes last four to eight weeks, traditionally in a hospital setting, but now increasingly based in the community. Pulmonary rehabilitation is effective in improving health status, breathlessness and exercise tolerance. It can reduce inpatient bed days and may reduce exacerbations of COPD.

### Patients with a history of exacerbations of COPD

Patients with an FEV<sub>1</sub> of  $\leq 50\%$  predicted and with frequent exacerbations of COPD in the previous year should be offered a trial of an ICS/LABA combination.<sup>2</sup> Formoterol 12mcg/ budesonide 400mcg or salmeterol 50mcg/fluticasone 500mcg are licensed to be given twice daily via dry powder devices, and produce a sustained improvement in lung function, symptoms and health status, with a reduction in exacerbations including hospitalisations.

Oral corticosteroids should not be prescribed for maintenance therapy unless a patient is unable to stop these after an acute exacerbation. The risk of side-effects with sustained oral steroid therapy is high. Osteoporosis screening should be considered with prolonged dosing.

There is a high prevalence (30-50%) of depression seen in COPD patients with frequent exacerbations. NICE guidelines recommend treatment with tricyclic or SSRI antidepressants.

Self-management plans should be discussed with patients who might suffer exacerbations. These should include details on:

- How to recognise an exacerbation
- When to use stand by courses of antibiotics /oral steroids
- When to call for help

### Patients with the "Failing Lung"

A diagnosis of "Failing Lung" should be considered when the patient has cor pulmonale or when oxygen saturation (measured by pulse oximetry)

is  $< 92\%$ . These patients should be referred for long-term or ambulatory oxygen assessment (to hospital or community-based schemes).

Patients with a failing lung may need to be referred for secondary/community specialist treatment (see Figure 3 - indications for secondary/ community specialist referral). Secondary care treatment involves more detailed assessment of patients (e.g nebuliser trial) and possibly surgical management (lung volume reduction surgery, lung transplantation). Co-morbidities are also treated (e.g. heart failure).

### Palliative Care

Referral for specialist palliative care should be considered in any patients with a failing lung where there is a likelihood that they may die of their disease in the ensuing year.<sup>5</sup>

End-of life issues should be discussed with the patient and managed in conjunction with the local specialist services.

### References:

1. Global Initiative for Chronic Obstructive Lung Disease (GOLD) . Global Strategy for the diagnosis, management and prevention of chronic obstructive pulmonary disease 2006 - GOLD 2006 www.gold-copd.com
2. National Institute for Clinical Excellence (NICE). Chronic Obstructive Pulmonary Disease: National Clinical Guidelines on management of chronic obstructive pulmonary disease in adults in primary and secondary care, Thorax 2003; 59 (Supplement 1). Short version available on www.nice.org.uk
3. Diagnosis and management of chronic obstructive pulmonary disease in primary care. General Practice Airways Group 2005 (on-line at www.pcrs-uk.org.)
4. Bellamy D, Bouchard J, Henrichsen *et al*. International Primary Care Respiratory Group (IPCRG) Guidelines : Management of Chronic Obstructive Pulmonary Disease (COPD). *Prim Care Resp J* 2006;**15**(1) : 48-57
5. Murray SA, Pinnock H, Sheikh A. Palliative care for people with COPD: we need to meet the challenge. *Prim Care Resp J* 2006; **15**(6): 362-64.

### Figure 3. Indications for secondary / community specialist referral

Ambulatory or Long-term oxygen assessment  
Nebuliser assessment  
Pulmonary rehabilitation  
Uncertain diagnosis  
Diagnosis in patient under 35 (suggesting alpha-1 anti-trypsin deficiency)  
Consideration of surgical management.

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