



Breathing New Life Into COPD

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Chronic obstructive pulmonary disease (COPD) remains a common cause of disability and death in Canada. Its prevalence among older women continues to rise to unprecedented levels. By 2020, it is projected COPD will become the third leading cause of death worldwide.¹⁻⁴

COPD is a respiratory disorder, largely caused by smoking, characterized by progressive, partially reversible airway obstruction, systemic manifestations, and increasing frequency and severity of exacerbations.

Spirometry is required for diagnosing this preventable and treatable disease. The Canadian Thoracic Society's diagnostic criteria are a post-bronchodilator forced expiratory volume in one second ($FEV_{1,0}$) < 80% predicted and $FEV_{1,0}$ /forced vital capacity (FVC) ratio < 0.7.

Improved symptoms and quality of life are realistic goals, even in patients with advanced disease.

Q: *Can dyspnea and disability be measured in COPD patients?*

A: The Medical Research Council (MRC) dyspnea scale is used to assess shortness of breath and disability in COPD. Dyspnea and activity limitation occur insidiously over many years. Consequently, a series of probing questions are often required to uncover the true level of disability. In general, patients with an MRC scale ≥ 2 require regular bronchodilator therapy, while those with an MRC scale of four or five require a comprehensive management plan (Figure 1).

Valerie's Visit

Valerie, 59, presents complaining of shortness of breath on activity, which has become progressively worse over the past three years. She has smoked a pack of cigarettes/day for the past 24 years.



She suffered three attacks of bronchitis over the past two years, requiring antibiotic prescription. Her only medication was an inhaled short-acting bronchodilator, which she used up to six times per day (12 puffs).

On evaluation:

- Medical Research Council (MRC) dyspnea scale was 4;
- post-bronchodilator forced expiratory volume in one second ($FEV_{1,0}$) was 38% predicted;
- $FEV_{1,0}$ /forced vital capacity ratio was 0.64; and
- oxygen saturation on room air was 92%.

The results confirmed the diagnosis of chronic obstructive pulmonary disease (COPD) with severe airway obstruction.

For more on Valerie, go to page 81.

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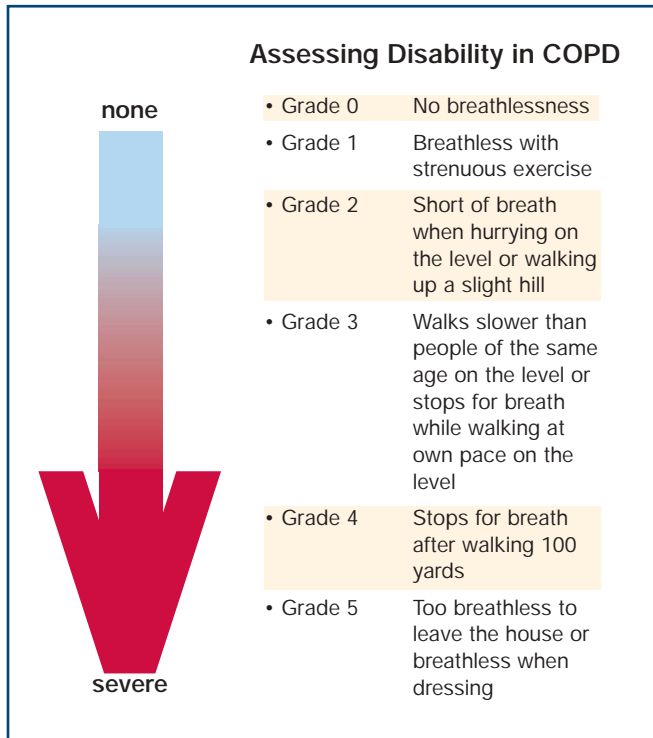


Figure 1. The MRC dyspnea scale.

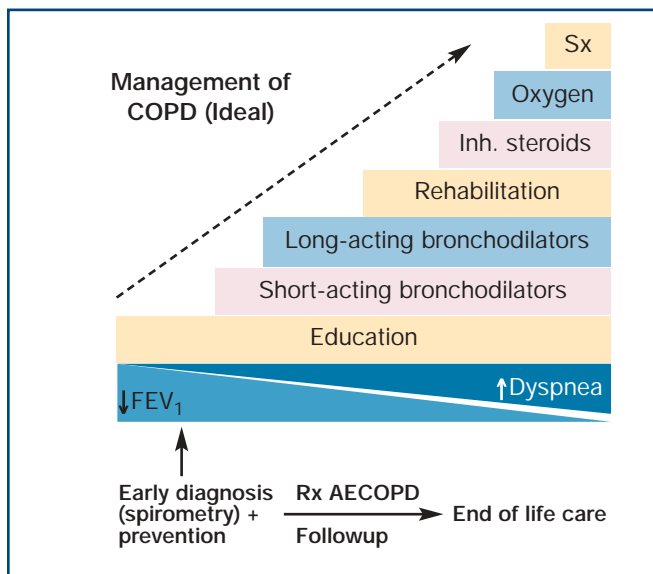


Figure 2. Escalating management paradigm for COPD based on increasing symptoms and disability.

Q: *What is the most important intervention in COPD?*

A: Smoking cessation is the single most effective intervention to reduce the risk of developing COPD and the only intervention that has been shown to slow its progression. At least 70% of smokers visit a physician each year; advice from a physician provides an important motivation to quit

Q: *Are education programs effective in COPD?*

A: A recent Canadian study demonstrated the effectiveness of educating the patient and family through supervision and support, based on disease-specific self-management principles.⁵ Those who receive structured, self-management programs can expect an improvement in quality of life and a reduction in unscheduled physician visits.

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Q: *Can dyspnea be effectively relieved in COPD?*

A: Yes. When combined with exercise training, modern pharmacotherapy consistently improves dyspnea and quality of life in COPD patients (Figure 2).

Bronchodilator therapy is the first step in management and should be escalated on an individual basis to achieve maximum symptom relief. Bronchodilators improve airway function and lung emptying, thus, reducing lung overinflation, which is a major cause of the symptom. Long-acting bronchodilators, such as tiotropium, allow sustained 24-hour bronchodilation and lung volume reduction. Twice daily long-acting beta 2 agonists (*i.e.*, salmeterol, formoterol) are alternative choices. Additional short-acting bronchodilators should be used, as needed, for relief of dyspnea.

Q: *How is the response assessed?*

A: A careful history remains the best method of assessing the benefit derived from bronchodilator therapy. A reduction in breathlessness during activity is the desired outcome. If a positive symptom response is not obvious, consider adjusting the dosage or stopping the medication. Spirometric reversibility testing does not reliably predict a positive symptomatic response to therapy.

Managing Valerie

Valerie's management plan should include:

- smoking cessation;
- the addition of a long-acting anticholinergic; if symptoms persist, add combined inhaled corticosteroid/long-acting beta 2 agonist inhaler, with a short-acting beta 2 agonist inhaler, to be used on a "when needed" basis; and
- referral to a pulmonary rehabilitation program.

Table 1

Steps to reduce exacerbations of COPD

- Smoking cessation
- Educating the patient about the need for early recognition and prompt treatment of exacerbations
- Pneumovax and annual flu vaccines
- Optimal bronchodilator therapy
- Inhaled corticosteroid (ICS) therapy for patients with more severe COPD ($FEV_{1.0} < 50\%$ predicted) who suffer recurrent exacerbations

For those with severe COPD, regular prophylactic ICS reduces major exacerbations by as much as 25%.

Q: *What is the best strategy to prevent exacerbations?*

A: Table 1 outlines the best strategy for reducing exacerbations of COPD. Recent studies have shown that in patients with severe COPD, regular prophylactic inhaled corticosteroids (ICS) reduces severe exacerbations by as much as 25%.¹⁻²

What about a combination?

Combination therapy can be given for convenience purposes to those taking both agents separately. Patients who remain breathless, despite optimal bronchodilator therapy, may benefit from a long-acting beta 2 agonists/ICS combination; but, this should be considered on an individual basis.

Q: *Should patients avoid dyspnea-provoking activities?*

A: No. The maintenance of an active lifestyle is of paramount importance for COPD patients to avoid the downward spiral towards deconditioning and immobility. There is strong evidence that a supervised exercise program is the best intervention to relieve dyspnea and increase activity levels and health status among COPD patients. CME

References

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Take-home message

- Goals of managing COPD patients include relief of symptoms, increased activity levels, and the prevention and treatment of exacerbations.
- Modern pharmacotherapy is effective in reducing symptoms, improving exercise performance, and increasing health status, even in advanced COPD.
- Education/self-management programs and exercise training are effective interventions for symptomatic COPD patients.

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