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PRACTICE

Diagnosing chronic obstructive pulmonary disease

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A 55 year old man attends surgery with a productive cough for nine months, which he has put down to his smoking. He had "chest infections" the previous winter and takes ramipril for hypertension. His breathing is now preventing him from climbing stairs.

What you should cover

Have a low threshold for considering chronic obstructive pulmonary disease (COPD)—COPD is often identified only in the advanced stage. Prompt diagnosis allows early intervention. Suspect COPD in patients over 35 years old with dyspnoea, chronic cough or sputum, or wheeze or frequent chest infections (winter "bronchitis") in the presence of a risk factor (see box 1).[1]

Establish the onset, pattern of symptoms, and severity—These may help predict the course of disease. Has the patient attended hospital with chest problems before? When was the patient's breathing last "good"? Is there anything that breathing problems stop the patient from doing, such as getting dressed or climbing stairs?

Elicit risk factors—See box 1.

Exclude other diagnoses and elicit comorbidities—COPD often presents in a manner similar to, or coexists with, other conditions. Co-morbidities can contribute to overall disease severity. Ask about weight loss, anorexia, and haemoptysis for lung cancer. Chest pain, orthopnoea, paroxysmal nocturnal dyspnoea, palpitations, or ankle swelling could indicate heart disease, and atopy may suggest asthma.

Current medication—Are symptoms worse after taking β blockers or non-steroidal anti-inflammatory drugs (consider asthma)? Is the cough worse after ramipril (drug side effect)? Do symptoms improve with inhalers?

Consider impact on life—How do symptoms affect daily activities and family life? Has the patient needed time off work or needed work duties to be adjusted? Has this caused any financial worries? Who does the patient live with, and does the patient need any help at home? People with breathing problems may feel anxious or low. Explore this by asking about their mood.

What you should do

Examination

This is often normal: physical signs commonly develop only in the later stages. Systemically, muscle wasting and signs of poor nutrition may be noted. Record body mass index as values <20 are associated with poor outcomes.[1] Assess the jugular venous pressure, fluid status, and heart sounds for heart failure. Chest hyperinflation with hyperresonant percussion and globally reduced breath sounds may be noted in stable COPD, but crackles may indicate infection.

Investigations

Spirometry

- Measure post-bronchodilator spirometry: an FEV1/FVC ratio <0.70 confirms the diagnosis of COPD.
- Classify severity of airflow obstruction (see box 2).

Other investigations

- A chest radiograph is usually indicated to exclude other pathology
- Check full blood count for polycythaemia or coexisting conditions contributing to symptoms, such as anaemia
- Further imaging and cardiac investigations may be indicated depending on clinical presentation.[1]

Predict disability

Airflow obstruction alone does not predict disability. Document baseline exercise tolerance using the MRC dyspnoea scale (box 3). The COPD Assessment Test (CAT) assesses the impact of COPD on patients' lives and is sensitive to changes in clinical condition (available at www.catestonline.org).[2]

Management

- COPD is an unfamiliar term and may frighten patients. Explain that it is the name for a group of conditions which cause breathing difficulties, often because the airways are

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What you need to know

- Have a low threshold for considering chronic obstructive pulmonary disease (COPD) in any patient over 35 years old with dyspnoea, chronic cough, chronic sputum, wheeze or frequent chest infections, in the presence of a COPD risk factor such as smoking
- Make the diagnosis of COPD on the basis of symptoms and post-bronchodilator spirometry (FEV_1/FVC ratio <0.70)

Box 1: Risk factors for COPD[2]

- Smoking—Airway damage in COPD is usually caused by smoking. Calculate cigarette pack year history* as this is often related in a dose-response manner to severity and mortality
- Passive smoking
- Smoke from home cooking and heating fuels
- Occupational exposure to dusts and chemicals
- Family history

*To calculate pack years, divide the number of cigarettes smoked per day by 20 and multiply by the total number of years smoked. Values >20 pack years are considered to be significant for the development of COPD

Box 2: Classification of severity of airflow obstruction[1]

Express post-bronchodilator forced expiratory volume in 1 second (FEV_1) as a percentage of predicted:

- ≥80% (with symptoms)—Stage 1, mild
- 50-79%—Stage 2, moderate
- 30-49%—Stage 3, severe
- <30%—Stage 4, very severe

Box 3: MRC dyspnoea scale[1]

Grade 1—Not troubled by breathlessness except on strenuous exercise

Grade 2—Short of breath when hurrying or walking up a slight hill

Grade 3—Walks slower than contemporaries on level ground because of breathlessness or has to stop for breath when walking at own pace

Grade 4—Stops for breath after walking about 100 metres or after a few minutes on level ground

Grade 5—Too breathless to leave the house, or breathless when dressing or undressing

damaged or narrowed from smoking. Provide written information (such as http://patient.info/health/chronic-obstructive-pulmonary-disease-leaflet) and book a follow-up appointment

- Advising patients to stop smoking is the most effective way to prevent COPD from progressing. Explain that bronchodilator inhalers are the first line treatment and that these work by opening up the airways to help breathing. Mention that antibiotics, steroids, and oxygen may be needed. Advise patients to respond promptly to worsening symptoms by increasing bronchodilator inhaler use, and to seek medical advice if things do not improve
- Take a multidisciplinary approach. The practice nurse may be able to review symptoms and inhaler technique and give influenza and pneumococcal vaccinations.

Referrals

Referral to a respiratory specialist can be helpful when the diagnosis is unclear or if suspected severe COPD. Also consider referral in those aged under 40 years or with a family history of α1-antitrypsin deficiency.

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Patient consent: Patient consent not required (patient anonymised, dead, or hypothetical).

1 National Institute for Health and Care Excellence. Chronic obstructive pulmonary disease in over 16s: diagnosis and management. (Clinical guideline 101). 2010. www.nice.org.uk/guidance/cg101.

2 Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for the diagnosis, management, and prevention of chronic obstructive pulmonary disease. Updated 2015. www.goldcopd.org/guidelines-global-strategy-for-diagnosis-management.html

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How patients were involved in the creation of this article

We identified a selection of patients with COPD from a general practice register and invited them to contribute to the creation of this article by having a discussion with FC. The discussion was focused on the initial presentation with COPD and the diagnosis, and we incorporated key points from one discussion into the article.

Further reading

Qaseem A, Wilt TJ, Weinberger SE, et al. Diagnosis and management of stable chronic obstructive pulmonary disease: a clinical practice guideline update from the American College of Physicians, American College of Chest Physicians, American Thoracic Society, and European Respiratory Society. *Ann Intern Med* 2011;155:179-91