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PERSPECTIVE

How I would manage a woman with COPD with few symptoms but at high risk of an exacerbation: a primary care perspective from Spain

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Clinical scenario

A 55 year-old cleaner attends for the third time this year with an exacerbation of her COPD. She has an increased cough, productive of clear sputum and breathlessness, with scattered rhonchi in the chest and an oxygen saturation level of 96%. She knows from experience that it will be at least 10 days before she is back to normal, and requests a medical certificate to be absent from work. She normally recovers well, and although she is always breathless on more strenuous exercise, she is not otherwise troubled by her symptoms which are eased sufficiently by her short-acting β2-agonist. She therefore stopped the inhaled corticosteroid/long-acting β2-agonist (ICS/LABA) prescribed after a previous exacerbation. Spirometry last year showed an FEV_1/FVC ratio of 0.58 and a post-bronchodilator FEV_1 of 47% predicted. She still smokes about 15 cigarettes a day.

Assessment

We would start by asking for details about her two main symptoms of cough and dyspnoea and checking that she had no general symptoms of fever. On examination, if there was no evidence of respiratory distress or concomitant conditions that could worsen the exacerbation, no more investigations would be considered at this time. The diagnosis of an exacerbation relies on the clinical presentation of an acute change of symptoms that is beyond normal day-to-day variation.[1,2] In summary, our patient has a moderate exacerbation of her known COPD, characterised by moderate airflow limitation and frequent exacerbations. She is not compliant with the previously prescribed medications for the stable condition.

Management of the exacerbation

Current guideline management of the exacerbation is based on the severity of the exacerbation[1,2] and the likelihood of infectious aetiology based on Anthonisen criteria.[3] More than 80% of exacerbations can be managed in an outpatient setting. She is normally prescribed a short course of oral corticosteroids for her wheeze, and is recommended to increase her short-acting bronchodilators. Antibiotics would be indicated if her sputum becomes purulent.[1] Early review after 72 hours is important to check that she has improved, to advise her when to reduce the emergency treatment, and to recommence maintenance therapy with a combination inhaled corticosteroid/long-acting β2-agonist (ICS/LABA) inhaler.

Routine follow-up and maintenance treatment

We would plan another scheduled visit four weeks later to reassess our patient in a stable condition. Even though previously she has not been motivated to stop smoking, we will again encourage her to consider a quit attempt and offer support from our practice 'stop smoking' group. Her past history suggests that she usually recovers well, with minimal dyspnoea (mMRC score = 2), and it is likely that she will again decide to discontinue regular inhaled medication a few weeks after the exacerbation.

The GOLD 2011 update recommends carrying out a multidimensional evaluation,[1] which – in addition to the severity of airway obstruction – also considers exacerbation frequency, symptoms (especially dyspnoea), and a broader assessment of the impact of COPD measured with a validated tool such as the COPD Assessment Test (CAT).[4,5] According to this new approach, the patient belongs to

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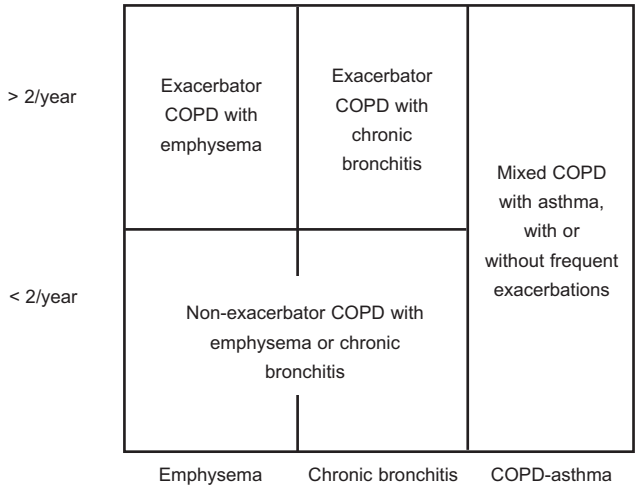
Figure 1. GesEPOC classification of COPD phenotypes



category C: few on-going symptoms but at high risk of exacerbations (see Figure 1 in Gruffydd-Jones's summary of the GOLD 2011 update.[6]

Why is she having so many exacerbations?

Patients who have two or more exacerbations a year are defined as 'frequent exacerbators'.[7] Exacerbations of COPD can be precipitated by several factors,[1,2] but the most common cause is respiratory infections. Air pollution and other causes of inflammation can trigger increased wheeze. The presence of bronchiectasis or chronic bacterial colonisation in COPD patients could promote repeated infected exacerbations, and investigations such as sputum cultures, chest X-ray or high resolution CT scanning might be indicated. In our patient, the non-purulent sputum and previously good response to treatment with oral corticosteroids with no need of antibiotics seems to rule out infection or bronchiectasis.

Our patient has few symptoms between exacerbations, and one possibility is that she has a component of asthmatic bronchial hyper-reactivity generating the frequent exacerbations. About 15% of COPD patients are asthma patients who have smoked and developed incompletely reversible airflow obstruction,[8] or smokers without a known history of asthma but with a predominantly eosinophilic inflammatory pattern. These patients may be described as "mixed COPD-asthma phenotype".

The new Spanish COPD guidelines recognise these patients as an additional phenotype (illustrated in Figure 1) with clinical, prognostic and treatment response differences.[2]

Mixed COPD-asthma phenotype

A Spanish expert group has proposed some criteria (not yet validated) for the diagnosis of the mixed phenotype: two major or one major and two minor criteria are required for the diagnosis (see Table 1).

According to the GesEPOC classification, our patient has a significant impairment of respiratory function and frequent exacerbations (at least three in the last year), with a good response to oral steroids, raising the suspicion that she could have a mixed COPD-asthma phenotype. However, we need to review the history, and undertake further investigations to confirm the diagnosis. Asking about a personal history of asthma or atopy, the history of previous exacerbations, frequency and intensity of coughing, is important. Repeated reversibility tests should be performed during the follow-up to detect airflow obstruction variability. A blood sample to look for total immunoglobulin E levels may be helpful. A referral to a secondary care specialist for induced sputum eosinophilia or a measurement of the fraction of exhaled nitric oxide (FeNO) could also be helpful if the diagnosis is still not clear.

Table 1. Suggested major and minor criteria for establishing the diagnosis of mixed COPD-asthma phenotype

Major criteria
Very positive bronchodilator test (increase FEV_1 >15% and >400 mL)
Eosinophilia in sputum
Personal history of asthma
Minor criteria
High levels of total IgE
Personal history of atopy
Positive bronchodilator test (increase FEV_1>12% and >200 mL) on at least two occasions

Management of mixed COPD-asthma

Patients with the mixed phenotype share clinical and inflammatory features with asthma, characterised by a good response to steroids, though smoking reduces the effectiveness of ICS – which could be one of the reasons for our patient's poor compliance. We should avoid monotherapy with a LABA, and prescribe a combination ICS/LABA therapy even in mild or moderate COPD.

Although she has previously been prescribed an ICS/LABA combination inhaler, she stopped treatment after a few weeks. Education to help her understand the importance of regular treatment in reducing the frequency of exacerbations and the need for time off work, will be crucial to gaining control of the disease. It is also important that she recognises early signs of an exacerbation and the prompt action she can take. We must recommend basic measures such as annual flu vaccination, proper nutrition, regular exercise and, of course, stopping smoking. We should develop a specific individual intervention explaining the significance that continued smoking has on the long term evolution of COPD and the effectiveness of the ICS treatment, offering all possible resources to help her with this difficult task.

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PERSPECTIVE

How I would manage a man with COPD who is symptomatic and at high risk of an exacerbation: a primary care perspective from Norway

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Clinical scenario

A 69 year-old man attends for a follow-up appointment two weeks after being hospitalised for an exacerbation of COPD. He is improving, though not yet back to normal. He quit smoking after a previous recent admission with a severe exacerbation. Spirometry last year recorded an FEV_1/FVC ratio of 0.36 and a post-bronchodilator FEV_1 of 29% predicted. He is currently taking a combination long-acting β_2-agonist/inhaled corticosteroid inhaler and a long-acting antimuscarinic.

This is a high-risk patient, who was admitted with an exacerbation two weeks ago and comes for follow-up. Mortality after admission to hospital for a COPD exacerbation is 13% within 6 months.[1] He has very severe airway obstruction (FEV_1 29% predicted) and has had more than two exacerbations in the previous year. He thus has very severe COPD and is in the new GOLD category D.[2,3]

Exacerbation in patients with severe COPD

Exacerbations are commonly caused by infections. There is some evidence that COPD patients using inhaled corticosteroids (ICS) have increased risk of bacterial pneumonia.[4] We should therefore look for signs of infection – fever, chills, tachycardia, coloured sputum – and also assess other possible causes like allergies, stress, under-treatment or non-adherence, and incorrect inhaler technique. In patients with very severe obstruction we should also check for respiratory failure. This can easily be measured with pulse oximetry in primary care.

In Norway we often use the C-reactive protein (CRP) test – a quick and easy test that can be performed in the office – to look for bacterial infections. CRP is an acute phase protein that rises quickly, reaches a peak on day 3–4, and goes back to normal within a week.[5] A low CRP (<50) after 3–4 days when most patients come to the office would make pneumonia or other bacterial infections unlikely, and would strengthen a decision to treat the exacerbation with oral prednisolone alone (though guidelines recommend that a patient hospitalised with very severe COPD should always have antibiotics[2]). A high CRP (>100) indicates a bacterial infection and should always lead to a prescription of antibiotics and/or a chest X-ray or an admission to hospital with a suspicion of pneumonia. The interpretation of a CRP value between 50 and 100 depends on the time course and symptoms. In the first three days after the symptoms appear (before CRP reaches its peak) a viral infection might reach values above 50. Later in the course of the disease most of us would suspect pneumonia and treat accordingly.

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