Community management of chronic obstructive pulmonary disease (COPD)

Annette Bades

Chronic obstructive pulmonary disease (COPD) is a serious, long-term and irreversible disease, which obstructs airflow to the lungs due to inflammation of the air passages and lung tissue damage. The most debilitating and frightening symptom is breathlessness, which can affect an individual’s ability to walk, exercise, work, socialise, sleep and eat, thus having a major impact on all activities of daily living. This article aims to provide an overview of COPD to facilitate a general understanding of the disease, assist community nurses with early identification for prompt detection and highlight the pathways and management options available. Due to its complexity, COPD can be challenging for both patients and healthcare professionals, thus the earlier it is diagnosed and management plans started, the sooner its progression can be slowed and any impact reduced.

KEYWORDS:
COPD  Self-management  Assessment  Screening

COPD costs the NHS more than £800 million each year and results in an estimated £2.7 billion of costs in lost working days (Department of Health [DH], 2010). However, there is no real price that can be attached to the changes people have to make to their lifestyles, due primarily to the restrictions enforced by ongoing disease progression and the potentially disabling effects COPD can have.

SYMPTOMS

As COPD progresses the most debilitating and frightening symptom is breathlessness (BLF, 2014). This can affect an individual’s ability to walk, exercise, work, socialise, sleep and eat, thus having a major impact on all their activities of daily living.

NICE (2010) suggests that due to the lifestyle changes required, the development of anxiety and depression is also common. The physical, psychological and social impact to each individual affected can be huge. Although COPD cannot be cured, the earlier it is diagnosed and a management plan implemented, the sooner symptoms can be improved and progression slowed, and thus fewer lifestyle restrictions will be necessary (BLF, 2014).

Early identification

Community nurses have an important role to play in the early identification of COPD and Jones et al’s (2014) study highlights the ‘opportunities lost’ for early diagnosis, both in primary and secondary care.

The study reveals that of the participating 38,859 people diagnosed with COPD, opportunities to diagnose 85% of these in the five years preceding their diagnosis had been missed. There were many reasons for this, including education. However, there are now clinical guidelines and pathways in place to support practitioners, as well as enhanced knowledge surrounding COPD and many opportunities to

Table 1: Risk factors for COPD (World Health Organization, 2014)

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<th>Smoking</th>
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<td>Occupational-related exposure</td>
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<td>Air pollution, indoor and outdoor</td>
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<td>Genetic factors</td>
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educate patients. Community nurses have a definitive role in assisting with the early identification of COPD and Csikesz and Gartman (2014) suggest primary care staff have the potential to make a real difference to the high number of hospital admissions and deaths caused by the disease.

However, management of COPD, including the essential techniques of self-management and positive behavioural change, is complex and difficult, therefore, a good understanding of this chronic disease is vital for community nurses (Rennard et al, 2013).

**COPD RISK FACTORS**

COPD is, in the main, a preventable disease. The predominant cause of COPD is smoking, including passive smoking (Table 1, World Health Organization, 2014). Smoking causes inflammation of the lining of the airways, resulting in permanent, irreversible damage.

Over the past 10 years there have been dramatic public health measures taken to promote health and to reduce deaths by assisting people to stop smoking, including:
- Increased spending on stop smoking campaigns
- More smoking cessation services
- Banning smoking in public places
- Enhanced education in relation to smoking (DH, 2004)

All community nurses have a role in the area of health promotion and a responsibility to recommend services within their area to support their patients.

Occupational-related exposure to fumes, dust and chemicals can also be a contributory factor to COPD. Workplaces are now educated and more aware of these dangers than they were in the past, so it is vital that protective clothing is worn and exposure regulations are in place and followed (Health and Safety Executive, 2013).

Indoor air pollution from biomass fuels, used for heating and in cooking, is a risk factor, although these mainly affect women in developing countries (World Health Organization, 2014). General outdoor air pollution has been shown to be a minimal risk, however, studies aimed at clarifying any links continue (Global Initiative for Chronic Obstructive Lung Disease [GOLD], 2014).

There are also genetic risk factors for COPD — alpha1 antitrypsin deficiency being the most commonly known. Lung infections in childhood, low birth weight and general bacterial and viral infections can all increase an individual's risk of developing the disease (GOLD, 2014).

Early diagnosis of COPD is vital to slow disease progression, facilitate positive behavioural change and develop individual management plans — these aim to improve symptoms and facilitate an active lifestyle (Lyngso et al, 2013).

Community nurses are ideally placed to recognise symptoms and act upon them accordingly. However, the difficulty is that in its early stages COPD may show no — or minimal — symptoms (NICE, 2010) making it difficult to detect and diagnose.

Table 2 lists the key indicators of COPD as determined by GOLD (2014) and NICE (2010). NICE (2010) recommends that a diagnosis of COPD is considered for all adults, aged over 35, that present with one or more of the key indicators (Table 2), alongside a risk factor (for example, being a smoker or passive smoker; having occupational exposure; or family history of COPD).

In addition to the key indicators, COPD has other symptoms that may help with identification:
- Wheezing
- Weight loss
- Effort intolerance
- Waking at night
- Reduced exercise tolerance.

However, many symptoms are not exclusive to COPD and are common in other conditions. Spirometry is the only accurate method of measuring airflow obstruction in COPD, therefore, its use is fundamental in arriving at a COPD diagnosis (GOLD, 2014; NICE, 2010).

**Spirometry**

This is a non-invasive procedure that involves the patient breathing into a spirometer. This measures the volume of air exhaled in one second, known as ‘forced expiratory volume’ (FEV1), and the total amount of air exhaled, known as ‘forced vital capacity’ (FVC).

In the author’s experience, spirometry is widely performed in the community and provides instant information on the patient’s breathing status. However, due to the number of conditions that can present in similar ways to

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<th>Table 2: Key indicators of COPD</th>
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<td>Chronic cough</td>
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<td>Chronic sputum production</td>
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<td>Dyspnoea (shortness of breath)</td>
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The difficulty is that in its early stages COPD may show no, or minimal symptoms making it difficult to detect and diagnose.

Indoor air pollution from biomass fuels, used for heating and in cooking, is a risk factor, although these mainly affect women in developing countries.
Relvar Ellipta 92/22 mcg is indicated for the symptomatic treatment of patients with COPD with a FEV1 <70% predicted normal (post bronchodilator) and an exacerbation history despite regular bronchodilator therapy.¹

BECAUSE I JUST HAVE SPACE FOR MORE COPD

The first ICS/LABA combination to deliver continuous 24-hour efficacy in a practical, once-daily dose.²³
Delivered in a straightforward device.⁴
That offers value to the NHS

Relvar is generally well-tolerated in COPD. The risk of pneumonia in COPD patients with Relvar 92/22 mcg is similar to that reported within the Summary of Product Characteristics of commonly used ICS/LABAs.⁵⁶

Contraindications:

- Relvar Ellipta is contraindicated in patients with a history of prior pneumonia, patients with a body mass index >25 kg/m² and patients with a FEV1 <50% predicted.
- Relvar Ellipta is contraindicated in patients with a history of galactose intolerance, the Lapp lactase deficiency or glucose-galactose malabsorption.
- Relvar Ellipta is contraindicated in patients with a history of exacerbation of overactive bladder symptoms.
- Relvar Ellipta is contraindicated in patients with a history of severe cardiovascular disease, diabetes mellitus, renal or hepatic impairment, hypothyroidism, myasthenia gravis, and other long-acting ß2-adrenergic agonists or medicinal products containing long-acting ß2-adrenergic agonists.

Interaction studies have only been performed in adults. Avoid ß-blocking agents that may result in worsening of COPD.

Possible Systemic effects include:

- Increased incidence of pneumonia has been observed in patients with COPD receiving Relvar.
- Relvar should not be used in conjunction with ß2-adrenergic agonists or medicinal products containing ß2-adrenergic agonists.
- Relvar should not be used in conjunction with long-acting ß2-adrenergic agonists or medicinal products containing long-acting ß2-adrenergic agonists.

References:


UK/TG/102641/14 Date of preparation May 2014

Practical efficacy
COPD, such as asthma, congestive heart failure and carcinoma of the bronchus, further investigations should be undertaken to ensure differential diagnoses have been considered before a final diagnosis of COPD is made (NICE, 2010).

In addition — as with all conditions — it is essential that a patient’s full history is taken and considered, as this might reveal vital information that could assist the community nurse in arriving at an accurate diagnosis.

The effects of COPD can vary greatly and impact people differently. Also, its symptoms are easily attributed to other diseases or conditions, which can make COPD difficult to identify at first. Community nurses are ideally placed — partly due to the sheer numbers of people they come into contact with and the range of experience they accrue — to be alert for the possibility that a patient has COPD symptoms and, with the patient’s consent, seek further investigations.

### TREATMENT

COPD affects individuals in different ways, therefore, its management should be guided by the symptoms experienced. However, management plans for people with COPD should include the following components:

- Assessment and monitoring
- Reduction of risk factors
- Management of stable COPD
- Management of exacerbations.

The aim is to (NICE, 2010; GOLD, 2014):

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

An essential element of the management plan is to reduce any known risk factors, which have the potential to cause an exacerbation. As discussed above, smoking is the primary cause of COPD, thus the most significant intervention is to encourage smoking cessation therapy. Both Van der Meer et al (2003) and Kanner et al’s (1999) studies demonstrate that — if identified and acted upon early — eliminating smoking will reduce the symptoms of COPD.

Inhaled drug therapy (corticosteroids) is also central to the management of COPD and is used to prevent and/or reduce symptoms (GOLD, 2014). Inhaled bronchodilator medication relaxes the bronchial muscles, increasing the size of the airways and improving breathing — there are short and long-acting variations (British Medical Association/Royal Pharmaceutical Society [BMA/RPS], 2013).

**‘Smoking is the primary cause of COPD, thus the most significant intervention is to encourage smoking cessation therapy.’**

Inhaled corticosteroids can also be used in combination with bronchodilators (NICE, 2010). Due to the importance of inhaled therapy in the management of COPD, an effective inhalation technique is vital and patients must be supported and their techniques regularly reviewed (Bates, 2012). Nebulisers and oral medication are also available and normally used for patients undergoing a severe exacerbation.

In addition, the use of oxygen therapy can be considered. However, as some patient’s respiratory drive (respiration is primarily controlled, or ‘driven’, by the level of carbon dioxide dissolved in the blood) is dependent upon their degree of hypoxia, a specialised assessment must be undertaken to avoid respiratory depression (NICE, 2010).

Education is vital if people are to take responsibility for their own health and wellbeing (DH, 2013). Pulmonary rehabilitation requires a multidisciplinary approach, involving numerous health professionals including nurses, physiotherapists and occupational therapists to facilitate education and an individualised exercise programme (BLF, 2014). This aims to increase patients’ health and wellbeing.

### KEY POINTS

- COPD is a progressive, debilitating disease that cannot be cured, but can be managed with early diagnosis.
- Individuals living with COPD may suffer from depression due to the impact upon their quality of life.
- Management of COPD, including self-management and positive behavioural change, is complex and difficult.
- Education is vital to facilitate individuals in taking responsibility for their own health and wellbeing.
- COPD affects individuals in different ways, therefore, its management should always be guided by the symptoms experienced by the patient.
- Pulmonary rehabilitation is a vital stage in the management of COPD, as are the specialist respiratory nurses who are available to offer advice, support and management plans.
- The predominant cause of COPD is smoking, including passive smoking.
- Occupational-related exposure to fumes, dust and chemicals can also be a contributory factor to COPD.
- Indoor air pollution from biomass fuels, used for heating and in cooking, is a risk factor, but mainly affects women in developing countries.
- General outdoor air pollution has been shown to be a minimal risk, however, studies aimed at clarifying any links continue.
- Inhaled drug therapy is central to the management of COPD and is used to prevent and/or reduce symptoms.
- Community nurses are ideally placed to be alert to the possible symptoms and, with their patient’s consent, seek further investigations.
stopped smoking

started running

NICORETTE® Invisi Patch Prescribing Information:

Presentation: Transdermal delivery system available in 3 sizes (22.5, 13.5 and 9cm²) releasing 25mg, 15mg and 10mg of nicotine respectively over 16 hours.

Uses: NICORETTE® Invisi Patch relieves and/or prevents craving and nicotine withdrawal symptoms associated with tobacco dependence. It is indicated to aid smokers wishing to quit or reduce prior to quitting, to assist smokers who are unwilling or unable to smoke, and as a safer alternative to smoking for smokers and those around them. NICORETTE® Invisi Patch is indicated in pregnant and lactating women making a quit attempt. If possible, NICORETTE® Invisi Patch should be used in conjunction with a behavioural support programme.

Dosage:

It is intended that the patch is worn through the waking hours (approximately 16 hours) being applied on waking and removed at bedtime.

Smoking Cessation:

Adults (over 18 years of age):

For best results, most smokers are recommended to start on 25mg/16 hours patch (Step 1) and use one patch daily for 8 weeks. Gradual weaning from the patch should then be initiated. One 15mg/16 hours patch (Step 2) should be used daily for 2 weeks followed by one 10mg/16 hours patch (Step 3) daily for 2 weeks. Lighter smokers i.e. those who smoke less than 10 cigarettes per day are recommended to start at Step 2 (15mg) for 8 weeks and decrease the dose to 10mg for the final 4 weeks. Those who experience excessive side effects with the 25mg patch (Step 1), which do not resolve within a few days, should change to a 15mg patch (Step 2). This should be continued for the remainder of the 8 week course, before stepping down to the 10mg patch (Step 3) for 4 weeks. If symptoms persist the advice of a healthcare professional should be sought.

Adolescents (12 to 18 years):

Dose and method of use are as for adults however, recommended treatment duration is 12 weeks. If longer treatment is required, advice from a healthcare professional should be sought.

Smoking Reduction/Pre-Quit:

Smokers are recommended to use the patch to prolong smoke-free intervals and with the intention to reduce smoking as much as possible. Starting dose should follow the smoking cessation instructions above i.e. 25mg (Step 1) is suitable for those who smoke 10 or more cigarettes per day and for lighter smokers are recommended to start at Step 2 (15mg). Smokers starting on 25mg patch should transfer to 15mg patch at 15mg as cigarette consumption reduces to less than 10 cigarettes per day. A quit attempt should be made as soon as the smoker feels ready. When making a quit attempt smokers who have reduced to less than 10 cigarettes per day are recommended to continue at Step 2 (15mg) for 8 weeks and decrease the dose to 10mg (Step 3) for the final 4 weeks. Temporary Abstinence: Use a NICORETTE® Invisi Patch in three situations when you can’t or do not want to smoke for prolonged periods (greater than 16 hours). For shorter periods an alternative intermittent dose form would be more suitable (e.g. NICORETTE® inhaler or gum). Smokers of 10 or more cigarettes per day are recommended to use 25mg patch and lighter smokers are recommended to use 15mg patch.

Contraindications:

Hypersensitivity.

Precautions:

Unstable cardiovascular disease, diabetes mellitus, renal or hepatic impairment, phaeochromocytoma or uncontrolled hyperthyroidism, generalised dermatological disorders. Angioedema and urticaria have been reported. Erythema may occur. It is rare but persistent, discontinuation treatment. Stopping smoking may alter the metabolism of certain drugs. Transferred dependence is rare and less harmful and easier to break than smoking dependence. May enhance the haemodynamic effects of, and pain response, to adenosine. Keep out of reach and sight of children and dispose of with care. Pregnancy and lactation: Only after consulting a healthcare professional. Side effects: Very common: itching. Common: headache, dizziness, nausea, vomiting, GI discomfort; Erythema. Uncommon: palpitations, urticaria. Very rare: reversible atrial fibrillation. See SPC for further details. Erythema. Do not use the nicotine patch on normal skin. Erythema, Discontinue palpitations, urticaria. Very rare: reversible atrial fibrillation. See SPC for further details. Erythema. Do not use the nicotine patch on normal skin.

Legal category: GSL.


Adverse events should be reported. Reporting forms and information can be found at www.mhra.gov.uk/yellowcard. Adverse events should also be reported to McNeil Products Limited on 01344 864 042. Date of preparation: January 2014.
COPD is complex, but if all community nurses have at least a basic understanding of the disease, are able to act upon an assessment of the symptoms, promote health and provide information about local services, many people with COPD will benefit from an enhanced quality of life. In addition, hospital admissions and deaths from COPD will be reduced.

**REFERENCES**


