



Management approaches for COPD: the role of the practice nurse

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Chronic obstructive pulmonary disease (COPD) is used to describe chronic lung diseases characterised by airflow limitation which are not fully reversible, "it is usually progressive and associated with an enhanced chronic inflammatory response in the airways and the lungs to noxious particles or gases" (GOLD 2011, p1). This results in persistent and progressive breathlessness, productive coughing, fatigue and recurrent chest infections (GOLD, 2007). It is predicted that by 2020 COPD will be the sixth leading cause of disability and the third most frequent cause of death worldwide (Wouters, 2003). Ireland has the highest mortality rate from COPD in the EU (The National Respiratory Framework 2008). However, COPD is often not recognized and therefore under diagnosed (GOLD, 2009). Precise prevalence rates of COPD in Ireland are difficult to find, however, recent work based on international figures, suggests that about 400,000 people have COPD (O'Farrell et al. 2011).

Practice nurses are ideally placed to work with people with COPD and have a pivotal role in the treatment and management of COPD. This requires practice nurses to understand COPD and its management so they can best advise their clients, and effectively help them to live life to the full despite having COPD. This short article focuses on some of the latest treatment and management approaches for people with COPD as outlined

in the literature and best practice international COPD guidelines and has a particular emphasis on the role of the practice nurse.

Diagnosing COPD

The new updated GOLD (2011) guidelines outline three key symptoms of COPD: dyspnoea, chronic cough and chronic sputum production. Dyspnoea is typically persistent, progressive and intensifies on increased exertion. Wheeze is often an accompanying feature of breathlessness and may be erroneously attributed to asthma. However, typically the patient with asthma has a history of waking at nighttime, breathless or experiencing wheeze, rarely experiences a productive cough and symptoms vary from day to day often triggered by exposure to certain allergens. GOLD (2011) recommends the use of the Modified Medical Research Council questionnaire (MMRC) or COPD Assessment Test (CAT) when assessing patients who potentially have COPD (GOLD 2011, p13) and the use of post bronchodilator spirometry to confirm airway obstruction. They state that studies conducted in many countries reveal that less than 6% of persons with COPD have ever been given a diagnosis of COPD. Spirometry is essential for accurate diagnosis and a survey of Irish GP practices in 2009, found that approximately only half of Irish GPs provided spirometry testing (EFA, 2009). This lack of spirometry testing and subsequent lack of diagnosis was also

evident in the recent PRINCE study (Murphy et al. 2011) This was a two-armed, single blind cluster randomized trial conducted in 32 GP practices in Ireland with an intervention arm in which participants with COPD (n=178) received a PRP and those allocated to the control arm (n=172) received 'usual care'. The PRP was delivered by a practice nurse and physiotherapist 2 hours per week over an 8 week period (Casey et al 2011). The overall aim of the study was to evaluate the effectiveness of a structured education pulmonary rehabilitation programme for those living with COPD attending their general practitioner (Murphy et al 2011). A lack of equipment and training were the main reasons given for low rates of diagnosis using spirometry. Clearly, if practice nurses are to fulfill their roles in the management and treatment of COPD then access to spirometers and spirometry training is key.

Key management strategies

In this section an overview of some of the key strategies to prevent and manage COPD and the practice nurses role in implementing same will be presented

Smoking cessation

Smoking is a key risk factor in the onset of COPD and the more a person smokes during their lifetime the more likely they are to develop COPD (Forey et al. 2011). Twenty-nine percent of Irish adults smoke (Brugha et al, 2009) while more recent reports reveal that approximately one in three women smoke and one in two younger and more disadvantaged women are addicted to tobacco (Irish Cancer society 2013). In the PRINCE study 129 (36%) of participants with COPD were current smokers; 77 were men and 52 were women. Smoking cessation preserves lung function and thereby modifies the clinical course of COPD (Anzueto 2006). In their systematic review of nursing interventions for smoking cessation, Rice and Stead (2008) conclude that smoking cessation advice given by nurses is effective. However this advice may be less effective when the nurse is not suitably trained in health promotion or smoking cessation techniques. Both the NICE (2004; 2010) and GOLD (2007; 2011) guidelines recommend that persons with COPD who smoke be offered smoking cessation advice. GOLD (2011) recommends the use of brief strategies to help patients quit and to gauge readiness to quit: Ask, Advise, Assess, Assist, and Arrange and the Transtheoretical Model of Behaviour Change. They outline that a brief 3-minute period of smoking cessation counseling results in smoking cessation rates of 5-10%. In addition "there is a strong dose response relationship between counseling intensity and cessation success" (GOLD 2007, p44). The European Respiratory Society Smoking Cessation Guidelines 2007 (Tonnesen et al. 2007) also recommends that smoking cessation should be incorporated into the management of each client's respiratory condition. However, whilst self help and brief advice may lead to success in patients with mild pulmonary disease, more intensive smoking cessation interventions are required for those patients with more severe respiratory disease. Practice nurses are ideally placed to play a central role in smoking cessation. In order to fulfill this role however, training in appropriate smoking cessation techniques is essential. It is equally important that practice nurses know when to refer clients who may require more intensive interventions to specialist services i.e. smoking cessation officers.

It must also be remembered, that not all smokers develop COPD and that other risk factors play a role in the onset of COPD. These factors include genetics, being female, sustaining recurrent respiratory infections, having a low socioeconomic status, exposure to air pollutants, poor nutrition, and asthma (Eisner et al. 2010; GOLD 2011).

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Pulmonary rehabilitation programmes

Pulmonary rehabilitating is "an evidenced based multidisciplinary and comprehensive intervention for patients with chronic respiratory diseases who are symptomatic and often have decreased daily life activities... it is designed to reduce symptoms, increase participation and reduce healthcare costs, through stabilising or reversing systemic manifestations of the disease (Ries et al 2006, p 6s). PRP for COPD patients has resulted in improvements in patient's sense of dyspnoea and fatigue and some indicators of HRQL (Lacasse et al. 2006, Troosters et al. 2005). The American College of Physicians (ACP) guidelines (Qaseem et al. 2011) recommends that PRP be offered to all symptomatic patients with FEV1 <50% predicted and considered for individuals with FEV1 >50% predicted (Qaseem et al. 2011). However PRP is not considered suitable for patients who are immobile, have unstable angina or who recently suffered a myocardial infarction (NICE 2010).

In Ireland PRP's are predominantly hospital-based and patient referral is from secondary care. This has led to long patient waiting list with only 8% of GPs having access to these programmes (EFA, 2009).

A PRP typically consists of a patient assessment, exercise training, education and psychosocial support (ATS/ERS 2006). Exercise training is key element of any PRP. This exercise training is typically supervised, delivered in-group settings and employs individually tailored exercise plans. Supervised programmes as opposed to unsupervised programmes however tend to yield the greatest benefit (Lacasse et al. 2006). Most programmes offer a range of exercise regimens targeted at improving strength and endurance. Frequency, intensity and specificity of the exercise sessions are the main determinants of the training effect. The British Thoracic Society (2001) recommends twice weekly supervised sessions with additional sessions undertaken by patients by themselves at home. Reis et al. (2007) conclude from a systematic review that strength training, lower extremity exercises at higher exercise intensity, unsupported endurance training of the upper extremities are the key elements of any exercise programme. Frequently the educational element of a PRP is delivered during group teaching and discussion sessions. These educational sessions usually take place immediately prior to, or after, exercise sessions and a variety of topics are included: breathing medications, O2 therapy, energy conservation techniques, relaxation techniques, breathing techniques, nutrition, what to do in emergencies, travelling with lung disease, end of life issues (Hill 2006).

However, educational programmes that focus on increasing knowledge alone are not enough; people with COPD must be taught self management skills and empowered to change behaviour (Bourbeau et al. 2004). People with COPD are often concerned about participating in PRP exercise programmes and need sup-



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port and encouragement to do so. In the PRINCE study, both the practice nurses and study participants in the intervention arm reported that the pre-existing relationship between nurse and client was an important part of successful participation and adherence (Casey et al. 2011). The PRP educational manuals and course content used in the PRINCE study is available online at <http://www.nuigalway.ie/nursingmidwifery/Research/PRINCE.html>

Pharmacotherapy

The GOLD guidelines (2011) are the most authoritative source in relation to medications for persons with COPD. The guidelines provide a detailed overview of the evidence to support prescribing certain drugs, the impact of these drugs and the adverse effects (GOLD 2011). The guidelines outline a range of therapies both pharmacological and non-pharmacological.

The following is a summary from GOLD (2011) in relation to the use of pharmacological therapies. Gold (2011) found that medications, prescribed with due consideration of the impact these drugs have on symptom reduction and side-effects, do reduce the frequency and severity of the symptoms of COPD. They did not however find substantive evidence that medications were able to reverse the overall decline in lung function experienced by people with COPD. Gold (2011) states that bronchodilator medications are core to symptom management in COPD and provide a detailed table outlining the main bronchodilator medications, the delivery route, dose and duration of action. For practitioners they identify five prescribing principles to guide prescribing decisions in stable COPD. These are:

1. bronchodilators are key to symptom management
2. the preferred delivery route is by inhaler
3. the choice of drug should be guided by the extent to which the drug provides symptom relief and the side-effects
4. that long-acting bronchodilators are more efficient in providing sustained symptom control
5. that a combination of bronchodilators may increase impact of these drugs.

These principles have a number of implications for practice nurses. The need to monitor symptoms and side effects to optimize the impact of pharmacological therapies is essential. Consideration should be given to the use of a recording tool for people with COPD so that when new drugs are prescribed the impact on symptoms and extent of side effects are then used to guide future prescribing decisions. Regular checks on inhaler techniques are also important. GOLD (2011) advises that many people with COPD find it difficult to use a metered-dose inhaler effectively because of co-ordination problems. In the PRINCE study (Murphy et al. 2010) many practice nurses found that even when they had taught inhaler technique, over-time, participant technique had become less effective. This means that regular updates are crucial to maintain effectiveness. In addition GOLD (2011) recommends the use of spacers to overcome co-ordination problems.

Exacerbations of COPD

Exacerbations of COPD tend to increase as COPD progresses and in approximately 80% of cases these are caused by infections (Robbins 2012) either upper respiratory tract infections or infections of the tracheobronchial tree (Gold 2011). These exacerbations not only impact on a person's quality of life but also speed up the decline in lung function and are related to significant mortality (GOLD 2011). They, therefore, identify three stages of intervention in the management of acute exacerbations: prevention, early detection and prompt treatment (GOLD 2011). Prevention is obviously the preferred outcome and smoking cessation, influenza and pneumococcal vaccinations, good inhaler technique and treatment with long-acting bronchodila-



tors may all contribute to prevention (GOLD 2011).

Practice nurses have a key role in ensuring that people with COPD are aware of the importance of these measures and deliver these interventions in the practice. In terms of early detection, people with COPD need to be aware of the warning signs of the start of an acute exacerbation, why early treatment is essential and why they need to seek help as soon as they recognize the signs of deterioration. In PRINCE we found that most people did not know the warning signs of an acute exacerbation nor understand the urgency of seeking help. The diagnosis of an acute exacerbation however is still exclusively based on clinical presentation as there are no known biomarkers that would enable a more comprehensive diagnosis (Gold 2011). Diagnosis is based on the following clinical symptoms; increased dyspnoea, increased sputum volume and purulence and increased cough. During an acute exacerbation Gold (2011) do not recommend spirometry be undertaken as it is difficult to perform and the accuracy of results are questionable. They also warn that the symptoms of other conditions are similar to an acute exacerbation and they therefore recommend differential diagnosis to rule out other underlying conditions such as congestive cardiac failure. While Gold (2011) supports the use of short-acting beta-2 agonists with or without short acting anticholinergics, they state that the uses of antibiotics are more controversial. Indeed a systematic review by Ram et al. (2006) concludes that antibiotic use can only be supported for those who are moderately or severely ill. At the start of an acute exacerbation, prompt treatment can minimize the impact and reduce the negative impact on a person's quality of life. Therefore, practice nurses need to be cognizant of the signs and symptoms of acute exacerbations, but more importantly they need to educate persons with COPD to recognize and understand their 'typical normal' COPD symptoms' and to know which symptoms indicate the need to seek prompt medical attention. In the intervention arm of the PRINCE study each participant was given an individual 'action plan booklet', in which they recorded their usual symptoms and also a record of those symptoms that warranted medical attention. Participants reported that this booklet not only helped them be alert for when their condition deteriorated but it also allowed them to share this information with their families who they felt would be better able to assist them when they felt unwell.

Future trends

Evidence based practice is key to the delivery of effective patient centered care. The evidence base for the treatment and management of COPD as indicated in the updated NICE (2010) and GOLD (2011) guidelines, is continually emerging and evolving. More recent research is focusing on the use of telemedicine and home

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monitoring systems in the management of chronic diseases, including COPD. These initiatives aim to enhance self-management, enable prompt access to healthcare services while simultaneously being cost effective. One study about to commence in the south west of Ireland, aims to explore the feasibility of delivering the PRINCE PR programme live online from a general practice setting. This study will involve one group of participants attending a face to face PRP in their GP practice, delivered by the practice nurse and physiotherapist, whilst the programme is simultaneously delivered remotely to other participants in their own homes. Such initiatives if feasible and effective may herald major changes in the way in which practice nurses in the future treat and manage not only COPD but other chronic conditions.

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