**Key points**

Chronic breathlessness in COPD is a widely reported symptom, but is under recognised by healthcare professionals.

Understanding COPD pathological disease changes, helps to understand symptom drivers.

Community nurses and staff are at the forefront of observing distressing breathlessness symptoms and can provide and signpost patients/carers and families to many supportive strategies.

There are many non-pharmacological breathlessness management interventions that can and should be adopted.

**Reflective questions**

Consider the last time you cared for a patient with COPD, did you question their experience of any chronic symptoms? If not why not?

Having read this article, the next time you are a caring for a patient with COPD, ask what is their most troublesome chronic symptom? Utilise 1 or 2 of the suggestions given and set a follow up time with the patient to re-review.

Explain to a patient, carer or health care practitioner the link between COPD pathophysiology and symptoms, reflect the impact this had upon them and yourself.

**Background:**

Chronic Obstructive Pulmonary Disease (COPD) is a common preventable and treatable disease that has significant impacts for its patients, their carer’s and family members. It is estimated in the United Kingdom (UK) there are 1.2 million people diagnosed with COPD (BLF 2016), yet there are a greater number of people with COPD who have not yet been diagnosed.

Death rates are rising and in 2012 almost 30,000 people in the UK died from COPD (BLF 2016). In the UK COPD prevalence is highest in the north of England and Scotland, which is thought to be related to socioeconomic factors including high levels of deprivation and smoking behaviour (Snell et al. 2016)

COPD is a disease whose prevalence increases with age. Our growing ageing population is well reported and by 2030 1 in 5 people in England will be over the age of 65 (House of Lords 2013). Associated with this longevity however is an increasing number of disabled years that patients with COPD are living (Global Burden of Disease Study, 2017). However, COPD is a disease that rarely exists on its own and many patients have comorbidities, meaning having more than one distinct disease (Valderas et al. 2009). Common comorbidities associated with COPD include cardiovascular disease, anxiety, depression, osteoporosis and diabetes (GOLD 2018).

**Pathophysiology**

Understanding disease pathophysiology is particularly helpful in being able to understand the symptoms that patients suffer with. A basic mechanical overview of a normally functioning respiratory system can be understood in the following way; atmospheric air is drawn into the alveoli as a result of the diaphragm moving downwards and the intercostal muscles moving outwards. This process alters the internal pressure of the thoracic cavity and it becomes lower than the pressure in the atmosphere. The now larger thoracic cavity allows ventilation to occur as the bronchi, bronchioles and alveoli expand ready to accept atmospheric air into each alveoli in preparation for oxygen to pass into the blood stream. In exhalation the opposite process happens the alveoli contract (but do not close completely), supported by the thoracic cavity reducing in size as the diaphragm moves upwards and the intercostal muscles relax, this pushes the expired gases out through the upper respiratory system (West 2008)

COPD is a disease that is “characterised by persistent respiratory symptoms and airflow limitation that are due to airway or alveolar abnormalities (or both)” (GOLD 2018). Common airway abnormalities in COPD include lung hyperinflation which is

“defined as an abnormal increase in the volume of air remaining in the lungs at the end of spontaneous expiration.” (O’Donnell 2006)

This increase in lung volume where air is retained in the respiratory system, occurs over many years and can be commonly seen where FVC (Forced Vital Capacity) measurements increase and FEV1 (Forced Expiratory Volume in 1 second) measurements decrease. Additional alveolar abnormalities are caused by COPD’s complex and deranged inflammatory process’ which leads to the permeant alteration of airways resulting in fixed airway obstruction (Kim 2017). Yet this inflammation is not restricted to the lungs and is strongly thought to worsen other comorbid diseases including cardiovascular disease, diabetes and diabetes (Barnes 2016).

**Smoking**

Continued cigarette smoking with COPD worsens an already deranged inflammatory process and increases the risks of bacterial and viral infections. It also accelerates lung function decline, meaning complete and sustained smoking cessation is critical in the efforts to preserve lung volume and reduce symptom burden (Zuo et al. 2014). Yet the number of COPD smokers are higher than that within the general population, which is thought to be related to high levels of nicotine dependency (Shabab et al. 2006).

**Symptoms**

Airways that are chronically damaged, associated with systemic inflammation and comorbidities including muscle wasting and osteoporosis cause significant ventilatory effort and high respiratory symptom burden for those with COPD, including cough and fatigue but notably chronic breathlessness. Breathlessness is highly disabling, limiting mobility for patient’s both within and outside their home environment and is closely linked with anxiety, depression and panic (Elkington et al. 2004). Moreover, breathlessness in COPD increases with airflow limitation, age, elevated BMI > 30 and heart failure (Mullerova et al. 2014). Yet breathless is under recognised by health care professionals (Chin & Booth 2016) and patients are largely under supported, however community nurses are well placed to observe this debilitating symptom and are pivotal in providing advice and support.

**Assessing breathlessness**

The international Global initiative for Chronic Obstructive Lung Disease (GOLD) guidelines have sought to raise the holistic assessment and management of COPD by combining assessments to include lung function, exacerbation frequency, degree of patient breathlessness and patient self-reported symptoms (GOLD 2018).

GOLD (2018) measure breathlessness using the modified British Medical Research Council (mMRC) breathlessness scale 0-4 scale (see table 1). However, the Medical Research Council (MRC) 1-5 breathlessness scale is widely utilised in the United Kingdom (UK) as recommended by NICE (2010) and is embedded in many UK health care system (see Table 2). These validated breathlessness measures are helpful in symptom assessment but it is very important to be clear which breathlessness scale is being utilised given the grade variation between the two.

**Managing chronic breathlessness**

The use of oxygen therapy in the COPD patient who is suffering breathlessness **without** hypoxia (that is reduced oxygen levels) oxygen is **not** routinely recommended in the daily life setting, this is based on the damaging effect that inappropriate oxygen use causes and a lack of evidence that oxygen therapy decreases breathlessness (Ekstom et al. 2016). It is critical that as health care professionals we share this evidence with our patients.

National target oxygen saturations (table 3) are essential parameters to follow in clinical practice and guide appropriate oxygen delivery (BTS 2017). However NICE (2010) and BTS (2015) guidelines recommend that patients with resting oxygen saturations of 92% or less, must be referred to appropriate specialist services for an oxygen assessment.

**Patient supported interventions**

Supporting COPD patients to stop smoking is vital. Smoking drives inflammation, thus worsening breathlessness. Patients often feel a sense of self-blame for having COPD, as such it is essential that we are empathetic to the patient’s addiction and are able to offer support at every opportunity remembering it may take more than 30 quit attempts before being successful (Chaiton et al. 2016).

NHS Smokefree is a valuable website to direct patients/carers and family too.

**Pulmonary Rehabilitation (PR)**

This is a key intervention for all patients with COPD that is widely available throughout community and hospital settings. PR is a 2 hourly group programme that patients usually attend twice weekly for 6-8 weeks. The programme is supported by health care professionals and consists of personalised, supervised exercise followed by disease specific education such as breathlessness and exacerbation management. It has multiple physical and psychological benefits including reducing breathlessness and exacerbations, whilst increasing mood and functional ability (Puhan et al. 2016). Referral to PR is most commonly undertaken by health care practitioners, including community nurses, but patients often need support in their decision to attend which is a further key role of the community health team. To locate PR programme location and contact details for England and Wales please follow the link <https://www.nacap.org.uk/copd/welcome.nsf/map.html>.

**Inhaler technique**

Whilst the focus of this paper has not been pharmacological management, it is vital that inhaler technique and checking of this is correct. For all older adults and those with learning disabilities using a large volume spacer with Meter Dose Inhalers (MDI) is advised, following a one puff to 5 normal inhalations. This is a technique that can also be effectively taught to carers and family members.

An excellent video to demonstrate can be found at <https://www.youtube.com/watch?v=yYscA7XkfTc>.

**Hand held fans**

Directing a hand held fan to the face has repeatedly demonstrated positive effects in the relief of breathlessness for a number of diseases, including COPD (Galbraith et al. 2010). It is believed that breathlessness relief is achieved by cooling of the nasal or oral mucosal receptors. Hand held fans are a simple cost-effective intervention for all patients suffering with breathlessness and should be recommended by health care staff.

**Calming Hand**

The ‘calming hand’ is a thinking strategy that is used in clinical practice predominately by palliative physiotherapists to support patient’s breathlessness (see figure 2). It is thought the patient using their own hand as an aid to remind and gain control of breath including relaxation has positive benefits as perceptions of breathlessness alter.

**Cognitive Behaviour Therapy (CBT)**

There are positive outcomes, in particular for the older adult when engaging with CBT. In the context of breathlessness CBT can be particularly helpful in understanding the interlinkage between cognitive thoughts and behaviour, where breathlessness perpetuates panic, escalates fears and thus heightens sympathetic arousal (Howard & Dupont 2014). Where these process’ are understood, clinicians work with patients to overcome these often self-perpetuating linkages. CBT interventions are available nationwide, through access to psychological therapies (IAPT) services moreover, patients can self-refer.

<https://www.nhs.uk/Service-Search/Psychological-therapies-(IAPT)/LocationSearch/10008>

**Singing for lung health**

A relatively new intervention, but one that is growing in popularity is singing. Where undertaken as a group activity singing increases social interaction, improves mood and aids new breathing techniques (Lord et al. 2011). The British Lung Foundation has a list of local groups, to which patients can self-refer and maybe able to attend sessions with carers/family members.

**Conclusion**

There are many non-pharmacological interventions available to support patients suffering with COPD and chronic breathlessness. These interventions are delivered by a variety of NHS staff and voluntary sectors. It is important that those at the forefront of patient care are able to communicate all available options in the endeavour to empower patients to gain control and thus gain relief from breathlessness symptoms.

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