Breathlessness (dyspnoea) can be an extremely distressing sensation, often characterised by rapid and difficult breathing. It is associated with a range of other acute and long-term conditions, and is a key symptom of Covid-19, the disease caused by the novel coronavirus identified in 2019 (SARS-CoV-2) that has resulted in a global pandemic. The highest incidence of breathlessness is found in patients with severe disease (Bajwah et al, 2020).

Covid-19 has varied clinical features, ranging from an asymptomatic state to acute respiratory distress syndrome and multi-organ dysfunction. In addition to breathlessness, common clinical features of the disease include fever (not in all cases), cough, sore throat, headache, fatigue, myalgia, loss of taste and/or smell, and rash. Most of these symptoms are indistinguishable from other respiratory infections (Bajwah et al, 2020).

The primary driver of breathlessness in Covid-19 is a viral lung infection causing an interstitial pneumonia with a reduction in lung-diffusing capacity; in some patients, this progresses to acute respiratory distress syndrome (ARDS) (Bajwah et al, 2020).

This article explains the pathophysiology of breathlessness, assessment strategies and management of the condition. It focuses on non-pharmacological management techniques, as these are often neglected in favour of drug treatment due to the commitment required from patients if non-pharmacological techniques are to be effective. Non-pharmacological techniques can be used in conjunction with drug treatment or as an alternative to it if medication is not clinically necessary.

**What is breathlessness?**

Breathlessness is not simply an automatic physiological function but a complex interaction between physiological, psychological, social and environmental factors (Yorke and Russell, 2008). The inconsistent relationship between pathology and breathlessness perception explains why optimising disease management alone does not guarantee good symptom control (Spathis et al, 2017). Optimal management requires a holistic approach, including both non-pharmacological and pharmacological interventions.
Acute breathlessness is a normal result of exertion in healthy people, but breathlessness is also a common symptom in a range of acute and long-term physical and psychological health problems (Table 1). When people are breathless, they often feel like they need to ‘get more air in’ and tend to take short, shallow breaths; this means small breaths are coming in and going out of the top part of the lungs only. The shoulders of affected individuals are also often tense and hunched.

Breathlessness can often lead to the development of an inefficient breathing pattern and is a debilitating symptom, with a negative impact on quality of life, psychological wellbeing and functional status. However, multiple studies have shown marked variation in participants’ perception of breathlessness for a given level of lung function (Grønseth et al, 2014; Agusti et al, 2010); this highlights the fact that patients’ perception of breathlessness may not reflect their level of respiratory function.

Psychological factors can have a major impact on breathing. Our mind has the power to alter our breathing patterns temporarily and dysfunctional breathing patterns can develop (Gilbert, 2003). If patients become preoccupied with their breathing, this can exacerbate the problem and a vicious cycle can develop. However, if patients are aware of dysfunctional breathing they can take steps to address it, using interventions such as physiotherapy or cognitive behavioural therapy.

### Assessment

There are numerous triggers of breathlessness, which may include a medical problem, physical exertion or anxiety (Table 1). In assessing patients who are breathless, the first priority is to establish whether there is a medical cause so appropriate treatment can be given (National Institute for Health and Care Excellence, 2020). It is important to recognise that there may not be a physical cause: breathlessness caused by anxiety is poorly identified and treated (Heslop-Marshall and De Soyza, 2014). Anxiety, secondary to breathlessness, social isolation and fear, is likely to be present to some degree in all patients who have Covid-19 (Bajwah et al, 2020).

Assessment is the step that defines the quality of person-centred care given to patients with advanced respiratory disease. Evidence suggests consultation time is saved when simple open-ended questions are asked; these can enable patients to make clear their needs as well as the impact of breathlessness on their everyday life and that of their family (Booth and Johnson, 2019). The way symptoms of breathlessness are assessed depends on the situation. If the assessment is undertaken face to face, the health professional can:

- **Ask the patient how breathless they feel**;
- **Observe the patient, for example for signs of cyanosis, use of accessory muscles, signs of agitation**;
- **Listen for wheezing, stridor**;
- **Assess subjective perception of breathlessness using a rating scale, for example the Medical Research Council’s Dyspnoea Scale (Table 2) or a five-point Likert scale (Box 1)**;
- **Perform objective tests to ascertain, for example, respiratory rate, oxygen saturation and peak flow levels**.

During the coronavirus pandemic, patient assessments are increasingly being undertaken remotely. In such cases, Greenhalgh et al (2020) recommend that health professionals:

- **Ask the patient to describe their breathlessness in their own words, for example by asking: “How is your breathing?”**
- **Follow the NHS 111 symptom checker, which asks three questions**:
  - Are you so breathless that you are unable to speak more than a few words?
  - Are you breathing harder or faster than usual when you are doing nothing?
  - Are you so ill that you have stopped doing all your usual daily activities?
- **Focus on change; this may include a clear story of deterioration, so you could ask, for example: “Is your breathing the same or worse than normal?”**

### Management

The management of breathlessness is hampered by its inherent complexity (Spaeth et al, 2019) and a multidisciplinary approach should be taken. The main aim of breathlessness management is to reduce its impact on an individual’s life or increase the threshold of activity at which breathlessness becomes limiting (Booth and Johnson, 2019).

All medical causes of breathlessness need to be identified and treated accordingly (NICE, 2020). While a holistic approach to breathlessness should be taken, pharmacological treatment (for example, in the form of bronchodilators) is commonly used and non-pharmacological interventions are underused – not least because they require commitment from patients if they are to make, and sustain, behaviour change.

Booth and Johnson (2019) suggest it is important to listen to the patient’s experience of breathlessness, as doing so will provide clues to triggers, previous experience of breathlessness and the possible predominant vicious cycle, which can be tackled first. Helping patients and their carers to understand more about the development of their breathlessness can be useful in generating commitment when suggesting psychological or behavioural interventions, be they in conjunction with, or as an alternative to, drug treatment (Booth and Johnson, 2019).

<table>
<thead>
<tr>
<th>Table 1. Possible causes and triggers of breathlessness</th>
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<tbody>
<tr>
<td><strong>Condition type</strong></td>
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<tr>
<td>Respiratory</td>
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<tr>
<td>Cardiac</td>
</tr>
<tr>
<td>Psychological</td>
</tr>
<tr>
<td>Spinal</td>
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<tr>
<td>Other</td>
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</tbody>
</table>

“Breathlessness caused by anxiety is poorly identified and treated but anxiety is likely to be present, to some degree, in all patients who have Covid-19”

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**Note:** This content is an excerpt from the article "Acute breathlessness is a normal result of exertion in healthy people, but breathlessness is also a common symptom in a range of acute and long-term physical and psychological health problems (Table 1). When people are breathless, they often feel like they need to ‘get more air in’ and tend to take short, shallow breaths; this means small breaths are coming in and going out of the top part of the lungs only. The shoulders of affected individuals are also often tense and hunched." Copyright © 2020 Nursing Times. All rights reserved.
Non-pharmacological techniques

Cognitive behavioural therapy approaches have been used successfully for patients with respiratory problems, particularly those who have symptoms of anxiety (Heslop-Marshall et al, 2018). Many patients can be taught self-management for episodes of breathlessness; however, as this often requires them to make significant and challenging changes in their own approach and behaviour, providing support to patients and their carers is a key intervention (Booth and Johnson, 2019).

Patients can use a number of cognitive and behavioural strategies to take control of their breathlessness. These include:

- Planning and pacing – this involves patients planning their activities by prioritising what is important to them and breaking down the activities into stages so they do not under- or overexert themselves.
- Breathing control – various breathing-control exercises (including diaphragmatic breathing, pursed-lipped breathing and respiratory muscle training) are common techniques to improve breathlessness, along with body-position exercises and relaxation techniques. These techniques aim to decrease the effort required for breathing and aid relaxation by encouraging deeper breathing, which may result in an improved breathing pattern through decreased respiratory rate and reduced breathlessness (Borge et al, 2014).
- Distraction – encouraging patients to take their mind off their breathing and focus on something else can be a powerful technique in reducing the impact of breathlessness.
- Relaxation – relaxation techniques are often used to reduce symptoms of anxiety; they have been found to be helpful in increasing patients’ control and helping with breathlessness (Volpato et al, 2015).
- Positioning – appropriate positioning can help reduce breathlessness. Sitting upright increases peak ventilation and reduces airway obstruction, while leaning forward with arms resting on a table or knees can support the upper body and has been shown to improve ventilator ventilatory capacity (Booth et al, 2013).
- Relaxing shoulders – relaxing and dropping the shoulders reduces the ‘hunched’ posture often associated with anxiety.
- Room temperature – keeping the room cool, for example with an open window, can ease symptoms of breathlessness.
- Cooling the face – evidence suggests using fans can reduce breathlessness recovery time, support exercise and increase self-efficacy (Booth and Johnson, 2019). Although an electric, hand-held fan directed at the face is helpful in certain settings (Gysels et al, 2015; Higginson et al, 2014), they are not recommended during the current pandemic because of the theoretical risk of spreading virus-infected droplets (NICE, 2020). Cooling the face with wet wipes (which, as with tissues, should be disposed of according to local guidelines immediately after use) can be tried (Bajwah et al, 2020).

If breathlessness symptoms persist, consider referring your patients to a specialist breathlessness clinic or palliative care service.

Conclusion

A multidisciplinary team delivers the most effective treatments for breathlessness. Management of this distressing symptom is complex but critically important; it requires careful assessment and the use of non-pharmacological – either as well as or instead of (as appropriate) – pharmacological interventions and periodic monitoring after the initial treatment period is completed.

### Table 2. MRC Dyspnoea Scale

<table>
<thead>
<tr>
<th>Grade</th>
<th>Degree of breathlessness related to activity</th>
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<tbody>
<tr>
<td>1</td>
<td>Not troubled by breathlessness except on strenuous exercise</td>
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<tr>
<td>2</td>
<td>Short of breath when hurrying on a level or when walking up a slight hill</td>
</tr>
<tr>
<td>3</td>
<td>Walks slower than most people on the level, stops after a mile or so, or stops after 15 minutes walking at own pace</td>
</tr>
<tr>
<td>4</td>
<td>Stops for breath after walking 100 yards, or after a few minutes on level ground</td>
</tr>
<tr>
<td>5</td>
<td>Too breathless to leave the house, or breathless when dressing/undressing</td>
</tr>
</tbody>
</table>

MRC = Medical Research Council.
Source: Bit.ly/MRCDyspnoea – used with permission of the MRC.

### References

National Institute for Health and Care Excellence (2020) COVID-19 Rapid Guideline: Managing Symptoms (Including at the End of Life) in the Community. NICE.

### Box 1. Five-point Likert scale for dyspnoea

1 = Absence of dyspnoea
2 = Mild shortness of breath
3 = Moderate shortness of breath
4 = Severe shortness of breath
5 = Worst possible shortness of breath