Nutrition screening in patients with COPD

In this article...

- How COPD symptoms affect nutrition
- The importance of screening patients for malnutrition
- Dietary advice for under- and overnutrition

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Abstract

Nutrition and weight management are increasingly recognised as important factors in managing patients with chronic obstructive pulmonary disease (COPD). This article discusses the impact of COPD symptoms on nutrition, and gives advice on the importance of regular nutritional screening using a validated tool.

Nutrition and COPD

For patients who are relatively “well”, nutrition advice can focus on the importance of eating a healthy, balanced diet, based on the “eatwell plate” model (DH, 2011). In addition, research has found some dietary factors are particularly beneficial for those with COPD. There is evidence that vitamins A, C and possibly E and colouring pigments in fruit and vegetables help to prevent the development of lung disease (Watson et al, 2002; Tabak et al, 2001). For those who already have COPD, lung function appears to be better in those who eat more fruit and vegetables (Keranis et al, 2010).

Oily fish such as salmon, mackerel, sardines, herrings and fresh tuna are rich in omega-3 oils, which are well known to be beneficial for heart health. Research shows that one of the omega-3 oils may also have a positive effect on the inflammatory response in COPD (Shahar et al, 1999).

Patients with COPD appear to be at increased risk of osteoporosis, thought to be due to a combination of factors including smoking, low vitamin D levels, low body mass index (BMI), low skeletal muscle mass and use of corticosteroids (Ionescu and Schoon, 2003). Added to this is the widespread myth that those with COPD should not eat dairy products, information can be downloaded from the COPD Education website at (www.copdeducation.org.uk).

The guideline includes recommendations for the management of nutritional problems in patients with COPD and there are dietary advice sheets that can be downloaded and given to patients.

5 key points

1. Patients with COPD should be encouraged to eat a variety of fruit and vegetables every day and a portion of oily fish every week
2. They should also be encouraged to eat 2-3 portions of dairy products every day
3. COPD patients should have regular nutritional screening to ensure early identification of problems and prompt treatment
4. Referral to a speech and language therapist should be considered if swallowing difficulties are suspected
5. If screening reveals problems in patients with comorbidities, advice from a dietitian should be considered

Nurses should ensure they screen patients and offer advice or referral
which puts them at even higher risk of osteoporosis. Nurses should stress the importance of including dairy products such as milk, cheese and yoghurts in the diet to ensure adequate calcium.

In terms of sputum consistency, it is important to ensure patients are hydrated by drinking enough fluids, so that the sputum has a high enough water content to make it easier to expectorate. Generally, everyone is advised to drink 6-8 mugs or glasses of fluid per day to keep hydrated, and to increase this in hot weather or if they have a raised temperature. This is based on advice from the Parenteral and Enteral Nutrition Group (2011), which specifically recommended a daily intake of:

- 35ml of fluid per kg body weight for adults aged 18-60 years;
- 30ml per kg body weight for adults over 60 years (PEN Group, 2011).

Using these figures allows more individualised requirements to be calculated for patients.

Fluids include water, squash and fizzy drinks, coffee and tea, fruit juices and milk. There has been some controversy about whether caffeine-containing drinks can count, but generally habitual drinking seems to make people adjust to the diuretic effect of the caffeine. Alcoholic drinks, however, cannot be counted towards fluid intake due to their dehydrating effect.

**Effect of symptoms on nutrition**

As the disease progresses and symptoms increase, they start to affect nutritional intake. It is common for patients to report difficulties with eating due to:

- Difficulties in shopping and preparing meals;
- Decreased appetite;
- Increased breathlessness on eating;
- Dry mouth (due to side-effects of medication);
- COPD-related swallowing difficulties – fatigue on chewing, reluctance to eat due to fear of choking and an uncoordinated swallow;
- Early satiety and feeling bloated;
- Fatigue;
- Anxiety and depression.

Added to this are increased nutritional requirements due to inefficient and overworking of respiratory muscles and cachexia in the later stages of the disease. Most of these factors contribute to reduced nutritional intake, weight loss and low BMI.

However, an increasing number of patients with COPD are overweight or obese, which is more difficult to explain.

Possible reasons for this could be that they still manage to eat without problems, but that fatigue and breathlessness on exertion leads them to be less active, and therefore gain weight. Or it could be due to the numbers of overweight people in the general population increasing and so proportionately more patients with COPD are overweight or obese.

In Rotherham, audits done at Breathingspace (the local specialist service for people with COPD) in 2008 identified more patients with “abnormal” BMIs (under 20kg/m² or over 24.9kg/m²) than in the local general population. NICE (2010) defined the normal range for BMI in COPD as 20kg/m² to less than 25kg/m²; although the healthy range for BMI is usually 18.5-24.9kg/m², the guidance pointed out that this may not be appropriate for people with COPD.

Patients with COPD are therefore at high risk of malnutrition, according to the following definition: “Malnutrition is a state of nutrition in which a deficiency or excess (or imbalance) of energy, protein and other nutrients causes measurable adverse effects on tissue/body form (body shape, size and composition) and function, and clinical outcome” (British Association for Parenteral and Enteral Nutrition, 2011).

**Importance of screening**

Nutritional screening of patients with COPD should be carried out regularly, even in those who seem to be generally well; they may begin to experience exacerbations more frequently and this can have a negative effect on nutrition. NICE (2010) recommended that BMI should be calculated; those with abnormal (high or low) BMI, or one that changes over time, should be referred for dietetic advice.

Early nutritional intervention is important as it is easier to maintain weight than regain lost weight. It is also important to use a validated screening tool; probably the most widely used is the Malnutrition Universal Screening Tool (MUST) (BAPEN, 2003; updated). Velasco et al (2011) compared MUST with other European tools and showed it to be reliable. MUST includes recommendations for action depending on the “score” achieved, which is extremely valuable. Whichever screening tool is used, it is vital that prompt action is taken to correct any nutritional problems.

**Managing undernutrition**

Being underweight, especially when this is linked to having less muscle, is independently associated with a poor prognosis in COPD (Anker et al, 2006). It is also associated with impaired pulmonary status, reduced diaphragmatic mass, lower exercise capacity and a higher mortality rate in people with COPD (Ferreira et al, 2000).

Once patients have been screened and identified as being at nutritional risk, it is important that they are supported to make dietary changes to improve their nutritional status as soon as possible. In this group, it is common to see gradual weight
It is important to identify nutritional issues early by regular screening, allowing prompt and appropriate actions to be taken to improve nutritional status, thus improving quality of life and prognosis for people with COPD.

References
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