Nutritional management of patients during and after COVID-19 illness

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ABSTRACT

The impact of nutrition on recovery from various illnesses is well recognised. Malnutrition can affect duration of hospitalisation and impede recovery, and therefore it is important to monitor this condition, especially in at-risk groups, such as older adults and those with chronic disease. Underlying malnutrition impairs the immune system, potentially making people more vulnerable to infections such as COVID-19 and impacting recovery. Patients recovering from severe illness are likely to have muscle wasting or feel weak and may have increased protein needs. In addition individuals who have been discharged from hospital may need ongoing nutritional rehabilitation. This article explores the range of symptoms of COVID-19 that can interfere with dietary intake, such as respiratory issues, loss of taste and smell and fatigue and weakness. It goes on to describe how community nurses can identify risk of malnutrition and dietary issues when working remotely. Additionally, it signposts to a range of resources developed to assist patients and carers in accessing appropriate dietary advice.

KEY WORDS

- COVID-19
- Nutritional support and rehabilitation
- Malnutrition
- Muscle wasting
- Holistic care

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Although COVID-19 is a new pandemic, and data on nutritional status during infection and in recovery are only beginning to emerge, it is evident from the knowledge acquired to date, and parallels with conditions that present with similar symptoms and disease trajectories, that patients who have moderate-to-severe infections of COVID-19 are at risk of malnutrition.

Those at risk of a severe COVID-19 infection, namely, older adults and those with multiple comorbidities, are equally those in whom malnutrition is already prevalent.

As malnutrition left undetected and untreated can increase length of hospital stay, result in readmissions and impede recovery, nutritional screening and appropriate nutritional care should be an integral component of holistic care for people who have or have had COVID-19 illness.

Although 32% of COVID-19 patients have required hospitalisation and may require nutritional care after discharge, 68% of those affected have been cared for in their own home or in residential homes (European Centre for Disease Prevention and Control (ECDC), 2020). With a unique role in the community, nurses working in primary care are pivotal in identifying nutritional issues in those with or recovering from COVID-19, and they can help facilitate the delivery of good nutritional care. This article explores the range of symptoms of COVID-19 that can interfere with dietary intake, and describes how to identify risk of malnutrition and dietary issues when working remotely. It also signposts to a range of resources developed to assist patients and carers in accessing appropriate dietary advice at any point in time.

Typical symptoms of COVID-19 infection that can affect dietary intake include:

- Respiratory issues that interfere with eating and drinking, such as coughing and breathlessness; gas trapping and early satiety, caused by gulping air while eating (British Lung Foundation (BLF), 2020); and dry mouth due to breathing through the mouth, use of inhalers and oxygen therapy (BLF, 2020)
- Loss of taste and smell (Xydakis et al, 2020), which can affect appetite and desire to eat
- Increased body temperature (NHS, 2020), which increases nutritional requirements and an inflammatory response, which suppresses appetite and contributes to muscle catabolism (Gandy, 2019)
- Fatigue and weakness, which impacts on a patient's ability to undertake normal activities of daily living, such as shopping and cooking.

In addition, social distancing and self-isolation may reduce carer support at mealtimes, limit shopping and prevent social interactions and eating with others that may usually enhance eating.

Identifying at-risk patients—malnutrition screening

Screening for malnutrition across all settings, including the community, in patients with and recovering from COVID-19, is recommended to identify those at nutritional risk and take action to maximise recovery from the illness. Identifying the risk of malnutrition usually relies on a validated tool, such as 'MUST' (Elia, 2003), to record height, weight and previous weight, used to calculate body mass index (BMI) (step 1 of 'MUST') and percentage unintentional weight loss (step 2 of 'MUST').

During the COVID-19 pandemic, health professionals have had to radically change their way of working with an increased reliance on remote consultations. If physical measures of these parameters are not possible, the British Association of Parenteral and Enteral Nutrition (BAPEN) (2020) recommends using:

- Patient-reported values of weight, height, and previous weight to complete steps 1 and 2 of 'MUST'
- A series of subjective criteria to form a clinical impression of an individual's malnutrition risk category (*Box 1*):

In addition, if a patient is unable to weigh themselves, the following questions can assist in determining malnutrition risk:

- How is your appetite lately? How are you managing with your eating and drinking?
- How would you describe your weight? What is a usual weight for you?
- Do you feel like your weight has changed in the last few weeks or months?
- How are your clothes and jewellery feeling? Do they feel like they fit differently than usual?

Box 1. Subjective criteria (BAPEN, 2020)

BMI

- Clinical impression—thin, acceptable weight, overweight. Obvious wasting (very thin) and obesity (very overweight) can be noted

Unplanned weight loss (particularly relevant in patients with COVID-19)

- Clothes and/or jewellery have become loose fitting
- History of decreased food intake, reduced appetite and/or dysphagia (swallowing problems) over 3–6 months, underlying disease or psycho-social/physical disabilities likely to cause weight loss
- COVID-19 can cause unplanned weight loss if food intake is reduced by the effects of the disease and its management (e.g. anorexia, breathlessness, impact of management options (sedation, CPAP/NIV), loss of taste and smell, psychological factors (e.g. anxiety), social restrictions)

Acute disease

- If a patient is acutely ill with COVID-19 and is unlikely to have no nutritional intake for more than 5 days or has had no nutritional intake for more than 5 days

Note: Use the combination of subjective criteria to estimate a malnutrition risk category (low, medium or high) based on your overall evaluation. BAPEN= British Association of Parenteral and Enteral Nutrition BMI=body mass index; CPAP=continuous positive airway pressure; NIV=noninvasive ventilation

Resources for professionals and patients

Once community nurses have identified nutritional issues, malnutrition risk or the need to reinforce advice on healthy eating, various resources are available to help them act on these issues. To support health professionals in the community to deliver dietary advice to patients and carers during the COVID-19 pandemic, the 'Malnutrition Pathway' team, in conjunction with the British Dietetic Association (BDA), the Royal College of Nursing (RCN) and BAPEN, has developed a COVID-19 Illness Community Support Pathway (www.malnutritionpathway.co.uk/covid19-community-hcp).

Three distinct patient leaflets have been created to support patients and their carers in accessing the right dietary advice according to appetite, history of weight loss, malnutrition risk and symptoms of COVID-19. The leaflets include tips on coping with symptoms related to COVID-19 illness, such as dry mouth, breathlessness and fatigue. Tips on diet in combination with encouraging activity to regain strength are also incorporated as a key component of recovery, especially for those with fatigue and weakness related to muscle loss during illness and in the presence of a poor appetite.

These leaflets aim to not only help those who have had a mild or moderate illness and have been coping at home but also aim to provide advice to those who have been in hospital with a more serious illness. They are free for patients to download, and the web pages have been designed to help patients and carers to access the nutritional advice leaflet that is most suitable to their needs through a series of simple descriptors.

- The green leaflet ('Eating well during and after COVID-19 illness') focuses on eating a balanced diet to help maintain strength and fitness, as well as help the body to fight infection (https://tinyurl.com/yc3t3vms)
- The yellow leaflet ('Improving your nutrition during and after COVID-19 illness') is for those with a poor appetite and/or recent unintentional weight loss, including tips to help get the most from food (https://tinyurl.com/y83h7pv5)
- The red leaflet ('Nutrition support during and after COVID-19 illness') is for those who have been very unwell, particularly those who have recently been discharged from hospital and those at home who are struggling to eat enough, are underweight and/or have lost considerable weight due to the COVID-19 illness. This information leaflet gives advice on increasing nutritional intake and how to incorporate oral nutritional supplements (ONSs) into the diet if they are prescribed (https://tinyurl.com/y7kxjyyg).

The dietary advice leaflets are intended to give general advice on the optimisation of intake in those with a poor appetite. Consideration should also be given to the ability of the patient or their carer to act on the dietary advice given, with regular monitoring built into clinical reviews.

Other key considerations related to diet

A range of strategies may be required to support people during and after COVID-19 illness to deal with nutritional issues. Points to consider include:

- Are they maintaining a balanced diet or missing out on key food groups?
- Are they meeting vitamin and mineral requirements or is supplementation required ? Vitamin D intakes may be of particular concern if they are shielding and spending little time outdoors—a daily supplement containing 400 international units (IU) (10 µg) of vitamin D is recommended (National Institute for Health and Care Excellence (NICE), 2018)
- If they are recovering from illness, have muscle wasting or feel weak, their protein intake may warrant special attention (Deutz et al, 2014). Further information on protein requirements in ageing and disease can be found in the leaflet 'Information to help meet protein needs: a healthcare professional fact sheet' (https://tinyurl.com/yb4n6w5f)
- Do they require food fortification advice and/or advice on how to get the most out of ONSs if they have been prescribed?
- Management of COVID-19 symptoms that might affect food intake, such as shortness of breath, dry mouth and loss of taste and smell
- Addressing the ability to get the foods they need—is social support required?

When relying on food-based strategies to improve dietary intake, care should be take to ensure adequate provision of protein, vitamins and minerals (NICE, 2006).

Patients with underlying conditions

Many patients experiencing a severe case of COVID-19 have underlying conditions, such as diabetes and cardiovascular disease (ECDC, 2020). Health practitioners should be alert to how these conditions may alter metabolic control or influence dietary management. For example, erratic blood glucose levels can arise secondary to the inflammatory response and insulin resistance. Blood glucose levels should be monitored and managed to minimise the risk of systemic complications (Gandy, 2019) and may require adjustment of medication (Zanten et al, 2019). The relevance of dietary advice previously provided may need to be considered, reassessed or relaxed in the presence of a poor appetite or unintentional weight loss.

Time spent in intensive care, including prolonged periods of sedation and mechanical ventilation, can have a profound impact on nutritional status, swallow ability, function, anxiety and quality of life. It is recommended that individuals remain under the care of either the hospital or community healthcare team, who can provide advice on recovery and rehabilitation. Tailored nutritional management is recommended for patients with complex needs and those recovering from spending time in the ICU, and it should ideally be provided by a registered dietitian. If this has not been provided, it is suggested that the hospital or community dietetic department is contacted for further advice.

Optimum use of oral nutrition supplements

It is important to consider the specific nutritional needs of the patient with COVID-19. Given the range of nutritional problems and the challenges faced by patients who are self-isolating/shielding, a pragmatic approach to the use of ONS should be considered including a patient's or carer's ability to adapt the diet and consume adequate amounts of essential nutrients to aid recovery and avoid admission or readmission to hospital or other consequences of malnutrition such as falls, infections, pressure ulcers. Dietitians are skilled in determining the requirement for ONS but may not be available to see all those who warrant an individual assessment. Local formularies and the guidance in the malnutrition pathway can be used to determine whether an ONS is indicated. It should be ensured that ONS prescription requests meet the Advisory Committee on Borderline Substances (ACBS) criteria (British National Formulary, 2020).

The European Society for Parenteral and Enteral Nutrition (ESPEN) recommends that COVID-19 patients should be given ONSs that provide at least 400 kcal/day and ≥30 g protein/day when oral intake is insufficient to meet estimated nutritional requirements (Barazzoni et al, 2020). High-protein ONSs may be needed to achieve this target, particularly among patients who are likely to struggle to consume adequate amounts of protein-rich foods, for example, older patients, those with chronic conditions (Holdoway et al, 2017) and patients who have been discharged from intensive care (Deutz et al, 2014) .

If there is ongoing concern regarding breathlessness or fatigue, or if patients are using a mask or nebulisers regularly, then a ready-to-drink, low-volume ONS could be considered to reduce the time and effort needed to prepare and consume ONSs.

Considerations regarding self-purchase and use of powdered oral nutrition supplements

A number of nutritional supplements are available for self-purchase in supermarkets, pharmacies and online. During the COVID-19 pandemic, it may be prudent to consider how accessible these may be to those who are shielded and self-isolating.

Before recommending powdered ONSs to patients, the following should be considered (Mulholland et al, 2019):

1. Clinical appropriateness
2. Does the patient/carer have the physical ability to make up the ONS?
3. Does the patient/carer have access to both a fridge and fresh milk?
4. Does the patient have adequate storage for milk and boxes of powder?

KEY POINTS

- Nutritional screening and appropriate nutritional care should be an integral component of holistic care for people who have or have had COVID-19 illness
- Patients who have moderate-to-severe infections of COVID-19, are at risk of malnutrition and diet-related distress, which if unaddressed can affect function, rehabilitation and quality of life
- Underlying malnutrition impairs the immune system, potentially making people more vulnerable to infections such as COVID-19 and impacting recovery
- Patients recovering from severe illness are likely to have muscle wasting or feel weak and may have increased protein needs.
- High protein ONS in addition to dietary advice may be required for patients who have had a severe COVID-19 infection, particularly for patients who are likely to struggle to consume adequate amounts of protein-rich foods, for example, older patients, those with chronic conditions and patients who have been discharged from intensive care
- Nutritional rehabilitation is an important for patients recovering from COVID-19 infection, particularly for those who have spent a period of time in intensive care; referral to a dietitian may be necessary

5. Can the patient/carer make up the powdered ONS as directed on the package to ensure safe handling practice?

If there are concerns with the above, a ready-made ONS may be more appropriate. The British Dietetic Association (BDA) has developed guidance that highlights considerations for local teams in respect of prescribing ONSs in patients recovering from COVID-19 in the community (BDA, 2020). **BJCN/NRC**

Conflicts of interest: none

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CPD REFLECTIVE QUESTIONS

- List five reasons why a severe infection of COVID-19 might interfere with a patients ability to eat and drink
- List three issues you would need to check to ensure a patient can purchase and make up a powdered oral nutritional supplement
- If a patient has poorly controlled diabetes and significant weight loss and weakness and is recovering from a severe infection of COVID-19, who might you need to refer the patient to, for advice on diet in nutritional rehabilitation?