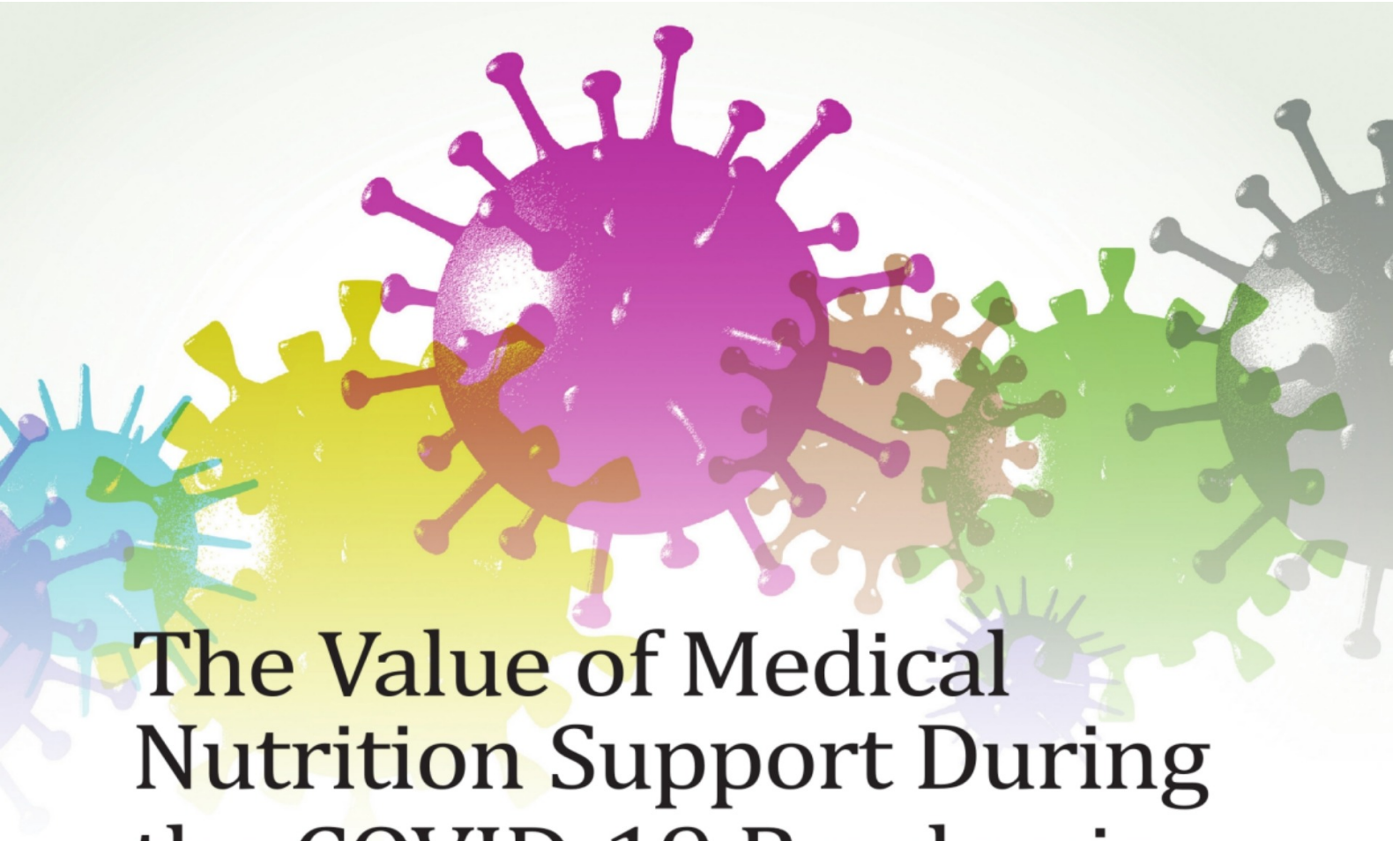

The Value of Medical Nutrition Support During the COVID-19 Pandemic

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"Coronavirus disease (COVID-19) is an infectious disease caused by a newly discovered coronavirus. Most people infected with the COVID-19 virus will experience mild to moderate respiratory illness and recover without requiring special treatment." World Health Organization, 2020.

For those who are most vulnerable, the consequences of COVID-19 can be fatal.

Disease-related malnutrition

Malnutrition impairs the immune system,[1] making people more vulnerable to infections such as COVID-19. The COVID-19 infection may further increase the degree of malnutrition, by elevating requirements and impacting appetite and the ability to eat enough during illness.[2,3]

More than three million people in the UK are estimated to be malnourished or at risk of malnutrition,[4] costing over £23 billion in the UK alone every year.[5] Medical foods can help to tackle the long-term challenges faced by the NHS, as well as bringing significant benefits to patients at an individual level.

What are medical foods?

Medical foods, otherwise known as Foods for Special Medical Purposes (FSMPs), describes a special category of foods designed to meet the needs of patients whose disease, disorder or medical condition requires nutritional management. They are scientifically formulated, highly regulated,[6] available on prescription and reimbursed by the NHS. They are designed for use under medical supervision across a wide range of settings, such as hospitals, care homes, and in the community, and are clinically and cost-effective, associated with improved functional outcomes, reduced complications and associated healthcare use.[7] Medical foods include tube feeds, oral nutritional supplements (ONS), dysphagia products and specialised formulae for infants and young children, and can be a lifeline for patients of all ages, from infants to the elderly.

Patients requiring medical foods range from those with food allergy or intolerance and inherited metabolic diseases, to those who are acutely unwell, and those living with chronic illnesses. These may include respiratory disease, such as chronic obstruction pulmonary disease (COPD), cystic fibrosis, cancer, kidney failure, psychiatric and neurological conditions, and patients recovering from surgery or critical illness. Patients who are critically ill are at greater risk of malnutrition[8] and may experience severe physiological stress, which can impact on their ability to satisfy their nutritional requirements.

During the pandemic, medical foods have been a lifeline for some patients suffering from COVID-19.

Screening during COVID-19

Nutrition screening during COVID-19 has been challenging for healthcare professionals, making it difficult to identify patients who are malnourished or at risk of malnutrition. Obesity can also mask sarcopenia, making it more difficult to identify those at risk. There is malnutrition risk for any patient with a hospital stay,[7] but for a patient suffering with COVID-19 this is especially true. Underlying nutritional issues, such as dysphagia, can be overlooked in patients with COVID-19, if coughing is not considered a possible red flag for swallowing problems but as a symptom of the infection. Therefore, it is especially important that this vulnerable group of patients are identified and managed appropriately. Despite the challenges, ESPEN recommend screening with a validated tool, such as the Malnutrition Universal Screening Tool ('MUST').[3] Where 'MUST' is unattainable, the Patients Association Nutrition Checklist could also be used.[9]

COVID-19 & medical foods

Symptoms of a patient suffering with COVID-19 can include coughing, breathlessness, pain, diarrhoea, abdominal pain, changes in taste and smell, loss of appetite and vomiting, all of which may impact on their ability to eat and drink. Therefore, many patients at home may be nutritionally compromised and those being admitted to hospital may have an already impacted nutritional status.

A patient admitted to intensive care (ICU) requires complex treatment. Whether patients are put on mechanical ventilators to breathe for them or assisted by 'non-invasive ventilation' (NIV) or 'continuous positive airway pressure' (CPAP) system, there is greater knowledge of the wider care and support that is needed for these patients. Whether this care and support be the use of sedation or the use of medical nutrition to ensure patients receive adequate nutrition and hydration to support their management and recovery.

Critically ill patients require adequate nutritional support to meet energy and protein requirements both during and after ICU.[10] Along with bowel changes and difficulty breathing (dyspnoea) due to intubation in ICU, failure to meet nutritional requirements is likely to have a negative impact on muscle mass and physical or functional ability.[11] Patients are also hypermetabolic and catabolic due to the stress response of critical illness, and failure to meet requirements further exacerbates loss of muscle mass and function.[12] A patient being treated in ICU is likely to have several interruptions to their feeding for procedures, such as proning, where the patient is rotated to help support the lungs, and imaging.

The ability to maintain nutritional intake for these patients by enteral tube feeding is therefore essential to avoid malnutrition and dehydration, helping patients recover from the virus.

Post-ICU recovery

The post-ICU phase of recovery is now considered equally as important as nutrition on the ICU, particularly for those already nutritionally compromised, frail or with sarcopenia.[10] In the early stages of ICU recovery, patients are likely to experience poor appetite, early satiety and taste changes,[13-15] along with loss of muscle mass and dysphagia. Therefore, good nutritional care during this period is paramount to the recovery process,[13] which may involve enteral tube feeding, the use of ONS or dysphagia products to support recovery back to a normal diet.

Patients may experience satiety limits, impacting the volume of nutrition consumed. The Critical Care Specialist Group (CCSG) of the British Dietetic Association[16] state that patients often manage adequate calorie intake, but struggle to meet protein targets. Therefore, the CCSG of the BDA recommends that consideration is given to using a low volume, high protein ONS.[16]

Ongoing rehabilitation will be essential for many COVID-19 patients moving out of intensive care as they deal with loss of muscle mass due to illness and reduced activity necessitating, in some cases, having to learn to walk again. High protein ONS is recommended for at least 3 months post hospital discharge for ICU recovery.[12] Patients may also experience post-extubation dysphagia, requiring a modified textured diet. Therefore, the use of thickeners or pre-thickened ONS may also need to be considered.

The process of nutritional recovery is complex and influenced by a number of factors. An individual's appetite, physical ability to eat, personal preferences, and emotional influences all affect nutritional status.

The CCSG of the BDA[16] recommends the following:

- Ensure that it is clear to the multi-disciplinary team that enteral feeding tubes should not be removed without review by the dietitian, even if the patient has started oral intake
- Supplemental enteral nutrition and/or oral nutritional supplements are used during the ward-based phase of care in order to meet nutritional targets where required
- Ensure the timing of enteral feeding regimens is structured around physio-therapy sessions to ensure minimal disruption to feeding
- Educating ward-based staff about the particular nutrition issues faced by ICU survivors
- Consider the need for dedicated staff to provide assistance and encouragement at mealtimes. Consider providing small regular energy dense meals and snacks. Ongoing discussions with catering staff to ensure the provision of suitable snacks is imperative. It is important to ensure the availability of snacks overnight as patients may experience altered sleeping patterns
- Ensure the provision of information to the patient about the importance of nutrition for recovery and the need to eat foods high in calories and protein to achieve this. As a high percentage of COVID-19 patients are overweight or obese, discussions will need to be tailored to achieving appropriate protein targets without exceeding calorie goals
- Offer a supplement after rehabilitation/exercise to ensure adequate energy is provided. Educating physiotherapists on the importance of this can be helpful
- Referring to appropriate members of the MDT, such as clinical psychology, if required
- Ensure follow-up to the appropriate community service is arranged if required and all relevant nutrition literature is provided
- Ensure an adequate supply of oral nutrition supplements/enteral feed is provided to the patient on discharge taking into account the fact that prescriptions may take longer to be filled on discharge
- Consider whether additional food packs need to be provided to the patient on discharge depending on their social situation and be mindful of the impact of social isolation.

Discharge & recovery in the community

It has been reported that the discharge process for a patient recovering from COVID-19 can happen quickly, and usually without nutrition advice. Therefore, patients are at risk of being discharged back into the community at various risks of malnutrition. It is therefore important that these patients are identified before discharge, and that any information about nutritional care should be transferred across care settings to optimise management post discharge, so that patients can be monitored and reviewed appropriately in the community.

Most of the patients who are followed up in the community have been hospitalised, but not all patients end up in hospital and self-isolate at home or in care homes. This could be the most vulnerable group of patients, including the elderly and those with comorbidities, who are already at risk of malnutrition. Problems with food preparation, shopping and social isolation during their illness also contribute to the greater risk of poor nutrition intake.[17]

The quality of the diet is vital for recovery of COVID-19, with micronutrients being particularly important for immune function and to reduce the risk of frailty.[18] Therefore, the recovery process should involve eating a varied diet, or supplementing the diet with ONS, when appropriate. A patient should be assessed on a case by case basis by an appropriately qualified healthcare professional, with regular review and monitoring to ensure that any nutrition support is stopped when appropriate to do so.

Along with nutrition, exercise is also vital to support a patient who is recovering from COVID-19. Therefore, it is important for physiotherapists and dietitians to work together to ensure an effective rehabilitation process for a patient, and that both their physical and mental wellbeing are looked after.

Protein: Critical for recovery because of the lean tissue lost, especially during sedation.

Vitamin D: Important to consider due to the increased risk of frailty with low vitamin D status. Public Health England has issued new guidance during the COVID-19 pandemic, to supplement with 10 mcg Vitamin D a day.[19]

Conclusion

Medical foods, whether through continued tube feeds, ONS or dysphagia products, play a significant role in supporting many patients suffering with COVID-19 and as they progress through the rehabilitation process and seek to recover from the long-term physiological impact of COVID-19.

"More than three million people in the UK are estimated to be malnourished or at risk of malnutrition,[4] costing over £23 billion in the UK alone every year.[5]"

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