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Dietetics for COVID-19 patients in ICU and beyond

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1.0 Nutrition in ICU patients with COVID-19

Emerging data suggest that nutrition related symptoms manifest early in the viral process[1] and are persistent post-discharge from ICU. Each of these symptoms has the potential to negatively impact oral intake and subsequent nutritional status before presentation to hospital / ICU. Symptoms include:

- Anosmia (with or without taste changes)
- Taste changes
- Loss of appetite
- Diarrhoea
- Nausea and / or vomiting

To understand the need for nutritional rehabilitation post-ICU, it is important to consider the continuum of the patients' illness. Given the above and the fact that presentation to ICU is around 7 days after the onset of symptoms, it is likely that the patients are presenting to ICU in an already nutritionally compromised state. This is further compounded by the clinical course during ICU which includes hyper-inflammation, the requirement for high levels of sedation, paralysis and proning. Each of these aspects impacts on nutritional status either directly by causing significant muscle wasting[2] or indirectly by leading to feeding difficulties and interruptions precluding the delivery of adequate amounts of energy and protein.

Whilst there is limited data available at present on the nutritional rehabilitation needs post-ICU, we do have some data coming through that suggests that the nutrition-related symptoms mentioned above are persistent post-ICU.

These issues, at least in the post-ICU hospital appear to be exacerbated by dysphagia, delirium, weakness, breathlessness and the environment (staff in PPE, cutlery and crockery, the specific food items that may not be as per patients choice, the psychological impact of the situation and absence of family members). Additionally, the increased number of overweight and obese patients poses an additional challenge in terms of meeting high protein requirements in the post-ICU hospital period. Lastly, some patients with T2DM who may not previously have required insulin are requiring ongoing insulin in the post-ICU phase and may require additional nutritional input for further glycaemic control.

There are some data exploring post-ICU nutrition-related symptoms in non-COVID patients up to 3-months after hospital discharge[3]. Additionally, observational data suggest that in the absence of supplemental enteral feeding or oral nutrition supplement, patients consume less than 50% of their energy and protein requirements orally[4-6]. Ongoing symptoms that are likely to affect nutritional intake and status[3,7] are:

- Poor appetite
- Early satiety
- Taste changes
- Dysphagia
- Bowel problems (e.g. diarrhoea or constipation)

We also know from local follow-up clinics that there is a significant need for nutrition input post-hospital discharge to manage the above symptoms, but also to manage the increased weight gain that occurs due to immobility. This weight gain appears to be mostly centrally and in the absence of peripheral muscle mass gain placing the patients at high risk of other metabolic disorders such as heart disease, type 2 diabetes, and stroke. These observations are confirmed by data on body composition changes up to 1 year post-discharge from ICU whereby patients are seen to gain fat mass, but not lean mass[8].

Besides the need for individualised dietetic follow-up of patients' post-ICU, there is also a strong need to educate all clinicians, including dietitians, who will be caring for these patients of the importance of nutrition after ICU. A recent survey of ward dietitians' knowledge and attitudes towards post-ICU nutrition suggests that knowledge of PICS, the nutritional implications of critical illness and the nutritional requirements post-ICU is sub-optimal[9].

In the context of the pandemic and 'lockdown', it is essential that the most vulnerable patients are assessed by a dietitian on discharge from hospital to home in order to ascertain their ability to afford food, shop, cook and ascertain the level of support that they have in the community. It is likely that isolation is going to be a significant problem. Many hospitals are currently providing food packs to their most vulnerable patients, but additional community support will also need to be arranged.

In terms of specific data collection relating to the requirements and current practices pertaining to post-ICU nutrition in COVID-19 patients, individual centres are collecting some data, but mostly only for the in-ICU period. Some centres are collecting data relating to anthropometry and nutrition-related symptoms post-ICU. It is likely to be some time before we have an accurate picture of the overall needs of these patients.

2.0 Existing guidance

There is no consistent follow-up from a nutrition perspective nationally for a general ICU patient and the NICE Guideline for rehabilitation after critical illness (CG83)[10] provides little nutrition-related information. Patients will be reviewed on the ward by a non-specialist dietitian and NICE recommends that a structured handover is provided, including rehabilitation goals[9]. After this, patients may receive follow-up if they are on a neuro rehab, cardiac or pulmonary rehab pathway, but this will not be post-ICU specific. Patients may also be followed up by a GI surgical dietitian if required.

In some centres, dietitians are involved in post-ICU follow-up clinics, but this is also not consistent.

Guidance is available from the Critical Care Specialist Group (CCSG) of the BDA for the management of nutrition post-ICU[12] and also from the BDA for the management of hospitalised non-ICU patients for both the ward and discharge into the community[12].

3.0 Recommendations for practice

3.1 Early phase: (0-1 months after ICU)

- All patients admitted to the ICU for >72 hours receive comprehensive nutrition assessment by a dietitian on step-down to the ward with a minimum of twice weekly follow-up for the first two weeks, moving to weekly thereafter. This assessment should include full anthropometric assessment using a method that is available locally (e.g. handgrip strength, Bioelectrical Impedance Analysis [BIA] etc)
- Nutrition screening using local nutrition screening tool of all patients on discharge from the ICU and then weekly on the ward until hospital discharge. This must include an updated weight.
- Provision of nutrition specific information to patients on discharge from hospital – such as those produced by the malnutrition taskforce, CCSG and ICU Steps.
- Dietetic inclusion in post-ICU follow-up clinics and utilisation of virtual clinics to review patients post-ICU.

3.2 After discharge from acute care setting

- Dietetic inclusion in post-ICU follow-up MDT clinics and utilisation of virtual clinics to review patients post-ICU.

3.3 At regular intervals after ICU admission (3-6months, 6-12 months and >12 months)

- Comprehensive nutrition assessment by a dietitian, in person if able, to perform full anthropometric assessment (e.g. handgrip strength, BIA etc)
- Nutrition specific recommendations provided to match rehabilitation plans and improve body composition.
- Re-evaluation of the need for patients to continue to be seen in MDT follow-up clinic or referral onto community services.

4.0 Recommendations for the wider system

- Funding for additional specialist dietetic review post-ICU and inclusion in post-ICU follow-up clinics.
- Implementation of full anthropometric assessment into clinical practice and tools to enable this to occur.
- Development of a standardised post-ICU nutrition follow-up pathway that can also be utilised for non-COVID patients. At a minimum, this should include details on the following:
- Screening questions and referral criteria for clinics → online self-screening → full nutrition assessment →onwards referral.

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