Nutritional management for patients recovering in the community from COVID-19



Mary Hickson

Professor of Dietetics





Alison Smith

Dietitian and Chair of the Older People Specialist Interest Group of the BDA



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Declarations

Alison Smith

- BDA member
- HCPC registered
- Chair of the BDA Older People Specialist Group
- Chair of Department of Health and Social Care Advisory Committee on Borderline Substances (ACBS)
- Care Quality Commission Specialist Adviser -Nutrition
- Independent nutrition advisor to the British Egg Industry Council
- Nutrition adviser to TLC care home group

Our collaboration with Nestle does not imply any endorsement of Nestle's products.

Mary Hickson

- BDA member
- HCPC registered
- Member of the Journal of Human Nutrition and Dietetics editorial board
- Honorary association with Imperial College London
- Honorary contract with Torbay and South Devon NHS Foundation Trust
- Have reviewed research funding from General Education Trust of the British Dietetic Association
- Received honorarium from Fresenius Kabi Ltd for educational study day Dec 2019 (payment went to UoP)





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Nutrition support in the community: Covid-19

Professor Mary Hickson

🧭 @drkmfh

Feedback from ICU

- Long ICU stay and long mechanical ventilation period can lead to increased weakness and muscle wasting
- Severe inflammatory period (cytokine storm) leads to ongoing catabolism, poor appetite and oral intake
- Hyperpyrexia in the acute phase of the infection leads to hypermetabolism and additional fluid losses
- Frequent feed interruptions due to severity of illness or proning leads to patients being behind in their nutritional targets
- Difficult blood glucose and insulin management in mainly (but not exclusively) the T2DM patients – there is limited information on how these patients manage post ICU.



How long does catabolism last?



Wandrag L, Brett SJ, Frost GS, Bountziouka V, Hickson M (2019) Exploration of muscle loss and metabolic state during prolonged critical illness: Implications for intervention?. PLOS ONE 14(11): e0224565. https://doi.org/10.1371/journal.pone.0224565 https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0224565



Feedback from hospital wards

- Patients are frequently well and entirely independent prior to admission.
 Very few underweight.
- Screening is frequently omitted and may not pick up nutrition risk in this patient group so effectively
- Soft and liquid foods are often preferred
- ICU acquired weakness is significant due to long stays
- Failure to identify patients needing extra help
- Dysphagia very difficult to identify due to coughing
- Dehydration may be exacerbated



Consumption of hospital meals audit

N=305, 80% of meals eaten were <400kcal; 6% of meals eaten met energy targets & 26% met protein targets



Feedback about discharge

- Discharges happening quickly
- Patients may be discharge before appetite is recovered. No information on how long this will persist.
- Information for patients coming out of hospital is variable
- Infection risk means limited items are being given out. Even information leaflets.
- Nutritional checklist weighing not expected
- Finding information can be difficult



Who are our patients in the community?

At risk of more severe complications:

- Older (particularly men)
- Multiple morbidities
- Diabetes
- Hypertension
- Obesity

Also.....

• Frailty



A. Gasmi, S. Noor, T. Tippairote, et al., Individual risk management strategy and potential therapeutic options for the COVID-19 pandemic, *Clinical Immunology* (2019), https://doi.org/10.1016/j.clim.2020.108409

Who are our patients?

20% of those hospitalised admitted to ICU (using COBR data for London; HSJ, 8/4/2020)

11-18% of over 60s hospitalised (Verity, 2020: https://doi.org/10.1016/ S1473-3099(20)30243-7)

Anyone can get it – but older, multimorbidity at greater risk.

Older frail patients at greatest risk?



These data derive from the **ICNARC** Case Mix Programme Database. The Case Mix Programme is the national clinical audit of patient outcomes from adult critical care coordinated by the Intensive Care National Audit & Research Centre (ICNARC). For more information on the representativeness and quality of these data, please contact ICNARC

https://www.icnarc.org/Our-Audit/Audits/Cmp/Reports



Critical care unit outcome	Patients with confirmed COVID-19 and critical care outcome reported (N=2936)		
Outcome at end of critical care, n (%)			
Alive	1437	(48.9)	
Dead	1499	(51.1)	
Length of stay			
Length of stay in critical care (days), median (IQR)			
Survivors	5	(2, 9)	
Non-survivors	6	(4, 10)	
Organ support (Critical Care Minimum Dataset)*			
Receipt of organ support, at any point, n (%)			
Advanced respiratory support	1795	(65.4)	
Basic respiratory support	1512	(55.1)	
Advanced cardiovascular support	698	(25.4)	
Basic cardiovascular support	2469	(90.0)	
Renal support	558	(20.3)	
Liver support	10	(0.4)	
Neurological support	139	(5.1)	

Symptoms

- Pyrexia (fever) (83%)
- Coughing (60%)
- Severe fatigue (38%)
- Myalgia (muscle pain) (29%)
- Loss of appetite linked to taste and smell dysfunction and more common in women (Lechien, 2020)
- Dyspnea (breathlessness)
- Headache
- Diarrhoea
- Hemoptysis (coughing blood)
- Pneumonia (inflammation of the lung tissue)

ICU (not specific to Covid-19)

- ICU acquired weakness
- Intubation related *dysphagia*
- PTSD
- Reduced appetite
- Taste changes
- Bowel problems
- Low energy and feeling weak
- Weight loss

Lechien, J.R., Chiesa-Estomba, C.M., De Siati, D.R. et al. Eur Arch Otorhinolaryngol (2020). https://doi.org/10.1007/s00405-020-05965-1

Leiwen Fu, et al. *Journal of Infection* (2020), doi: https://doi.org/10.1016/j.jinf.2020.03.041

Albrich & Hickson, 2019 https://epostersonline.com/soa2018/node/967



Nutrition-related symptoms are common post ICU and increase the risk of nutritional problems long term

*Not hungry at mealtimes 53% 9% 62% 45% 87% Lost muscle 42% Feel full quickly 43% 16% 59% Low Energy Levels 58% 23% 81% *Not a good appetite 43% 7% Feeling weak 59% 15% 74% 50% Drowsy or sleepy Food tastes unpleasant 43% 5% 59% 11% 70% 49% 66% Lost weight 35% 31% 38% 7% *Not enjoy eating 45% Gained weight not muscle 47% 9% 57% Nail changes 30% 8% 38% Short of breath 39% 49% 9% Diarrhoea 34% 3% 37% Pain in body 30% 14% 43% Food smells unpleasant 35% 1% 37% Shoulder problems 26% 7% 32% Bloating 28% 4% 32% 0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Bowel problems 27% 4% Low mood 51% 31% 57% Difficulty sleeping 45% 9% 54% Hair loss 23% 4% 27% Anxious 39% 7% 46% Swallow problems 20% 4% 24% 0% 10% 20% 30% 40% 50% 60% 70% Problems chewing 23% 1% 24% Sore mouth 15% 22% Indigestion 19% 3% 22% Nausea 18% 0% 18% Constipation 14% 1% 15% Vomiting 10% 9% 0% 20% 40% 50% 60% 70% 30%

Severe (%)

Moderate (%)

Albrich & Hickson, ICS State Of the Art Meeting 2018. https://epostersonline.com/soa20 18/node/967



Covid is prevalent in a population already at high risk of undernutrition

Wolters et al, 2019, Clinical Nutrition <u>https://doi.org/10.1016/j.</u> clnu.2018.10.020

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Undernutrition compromises immune response





Nutritional problems persist long term

12 months after hospital discharge 15% at low nutrition risk and 20% at med/high risk had further deterioration in ADL

Julian, A. 2018, PhD thesis, ICL



This translates into poor food intake

Julian, A. 2018, PhD thesis, ICL



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Systems at hospital discharge are often inadequate to successfully hand over nutritional care

- Screening is difficult or impossible during covid pandemic
- Referral for dietetic care is variable (Julian, 2018, ICL)
 - 36% of patients who should be referred in hospital were not.
 - No information provided at discharge about these patients.
 - Once in the community 79% not referred when indicated.
 - Those not receiving dietetic input did worse than those who did.
- Nutrition information often is not included in discharge communication (Russel & Elia, 2014)
 - BAPEN, 2011 11% of hospitals always provided nutrition information at discharge
- Assessed patient's nutritional status at discharge (Pohju, 2018 <u>https://doi.org/10.1016/j.clnesp.2018.08.01</u>)
 - Sweden 18% Norway 8% Denmark 15%





Protein

Recommendations	g/kg BW/d	g/d for 60kg person
UK Reference Nutrient Intake for adults	0.75 (0.8)	45-48
*Older adults	1.0-1.2	60-72
*Older adults with acute or chronic disease	1.2-1.5	72-90
*Older adults with severe illness or marked malnutrition	2.0	120

*Bauer J, Biolo G, Cederholm T et al. Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE Study Group. J Am. Med Dir Assoc 2013; 14: 542–59.





Wu et al. Effect of HMB supplementation on muscle loss in older adults: A

systematic review and meta-analysis. Arch Gerontol Geriatrics. 61(2) 2015,

HMB

Both supplemented groups improved leg strength, grip strength, and gait speed from baseline but no treatment differences. There was an effect in people with mildmoderate sarcopenia for leg strength only.

Cramer et al. 2016 Impacts of High-Protein Oral Nutritional Supplements Among Malnourished Men and Women with Sarcopenia: A Multicenter, Randomized, Double-Blinded, Controlled Trial. JAMDA 17(11):1044-1055. <u>https://doi.org/10.1016/j.jamda.2016.08.009</u>



Vitamin D



Associations of consumption of medium- and poor-quality diets compared to good-quality diets with 4-year incidence of frailty



- Diet Quality
 assessed by Healthy
 Eating Index
- **Frailty** using Fried phenotype

Hengeveld et al. **Prospective Associations of Diet Quality With Incident Frailty in Older Adults: The Health, Aging, and Body Composition Study**. J Am Geriatr Soc 67:1835–1842, 2019

Exercise



Liao et al. The Role of Muscle Mass Gain Following Protein Supplementation Plus Exercise Therapy in Older Adults with Sarcopenia and Frailty Risks: A Systematic Review and Meta-Regression Analysis of Randomized Trials. *Nutrients*. 2019;11(8):1713. Published 2019 Jul 25. doi: <u>10.3390/nu11081713</u>

Summary

- Range of patients in the community at **<u>different</u>** levels of risk (triage?)
- Most at risk will be those discharged from ICU
- All discharged patients are at risk of deterioration and poor recovery without adequate nutrition
- Identification of those most at risk will be harder as screening may not have occurred and modified discharge systems.
- Obesity can mask sarcopenia patients may not 'look' obviously malnourished.
- Exercise and optimal nutrition (protein, vit D, quality diet) are central to preventing deterioration, future frailty and re-admission.
- Huge workload to identify, treat and monitor additional at risk patients in the community.
- BUT there are other issues too linked to co-morbidities:
 - Are they malnourished?
 - How long does appetite loss last?
 - How is glycaemic control affected?
 - If very overweight, gaining muscle is important not weight

We have very little (or no) data on recovery in the community – collect it if you can