

Protein Intake In Intensive Care Patients With Covid-19 – Comparison Before And After Optimization Of A Simplified Nutrition Protocol.

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Rationale: Organisational challenges of the first wave of COVID-19 pandemic led us to develop a practical and simplified nutrition protocol (SNP1) for COVID-19 patients in the ICU (1). After the first wave, SNP1 was further optimised to a second simplified protocol SNP2, with the aim of improving the coverage of protein target, using specific protein-enriched nutrition products. In this study, we compared [protein intake](#) between SNP1 and SNP2.

Methods: All COVID-19 patients admitted in the ICU from April 6, 2021 to March 10, 2022 with a length of stay of ≥ 4 days were included. SNP1 was used until October 19, 2021 and SNP2 from October 20, 2021. For both SNP1 and SNP2, the energy target was calculated as 25 kcal/kg body weight (BW) and the protein target as 1.3 g/kg BW/day. The [ideal BW](#) (body mass index (BMI) = 22.5 kg/m²) was used instead if the BMI was > 25 kg/m². Descriptive data are presented as median with interquartile range (p25-p75). Wilcoxon Mann-Whitney [Rank Sum Test](#) was used to compare [protein intake](#) between patients treated using SNP1 and SNP2.

Results: Of the 141 patients included, 34 were treated according to SNP1 and 107 with SNP2. Overall, the mean age was 67 (58-74) years, 50 (35%) patients had overweight and 53 (37%) had obesity. For patients with SNP1, the mean APACHEII score was 25.5 (18-29) and mortality was 20%, and for SNP2 it was 23 (14-29) and 38%, respectively. Non-invasive mechanical ventilation was performed in 38% of patients with SNP1 versus 77% with SNP2. The median number of fasting days represented 6.3 (3.7-9.1) % of the ICU stay for SNP1 and 7.1 (4.0-10.0) % for SNP2. Percentage of days below protein target according to prescription were significantly lower [in patients](#) with SNP2 (33.3 (10.0-80.0) versus 59.6 (33.3-90); p-value = 0.01). Prescribed and actual protein intakes are presented in Table 1.

Table1:

Empty Cell	SNP1	SNP2	p-value
Prescribed protein intake			
-Protein (g/d)	67.4 (60.0-75.4)	74.8 (59.8-84.8)	0.09
-Protein/kg BW	1.0 (0.9-1.1)	1.1 (0.9-1.4)	0.06
Actual protein intake			
-Protein (g/d)	52.4 (44.7-63.4)	51.8 (35.1-63.5)	0.16
-Protein/kg BW	0.8 (0.7-0.9)	0.8 (0.5-0.9)	0.17

Conclusion: The adapted SNP2 nutrition protocol allowed better prescription of protein intake in COVID-19 ICU patients, but actual protein intake was not increased. This is probably due to a higher rate of fasting days in SNP2 patients, with more continuous non-invasive ventilation and higher aspiration risk. Optimisation of nutrition through supplemental [parenteral nutrition](#) should be considered early in this special group of intensive care patients.

References:

(1) de Watteville A. et al. Impact of nutritional therapy during the first wave of the COVID-19 pandemic in the intensive care patients: A retrospective observational study. Clinical Nutrition.2021. [Epub ahead of print]

Disclosure of Interest: None declared