

The importance of clinical nutrition in the intensive care unit: a retrospective analysis

F. Di Ruocco¹, P. Federico¹, F.Ferrara², P.Sorrentino², S.Venezia², E.Nava², V.Celotto¹

1. South Area District Pharmaceutical Complex Unit; Local Health Authority Napoli 3 SUD.
2. Government Territorial Pharmaceutical Assistance and Agreements Complex Unit; Local Health Authority Napoli 3 SUD.

Background and aims

A patient admitted to an intensive care unit is subject to a hyperinflammatory state that can lead to cardiorespiratory collapse and subsequent death. This happened in the early 2020 during the first pandemic wave as a result of the 'cytokine storm' caused by the Sars-Cov-2.

Methods

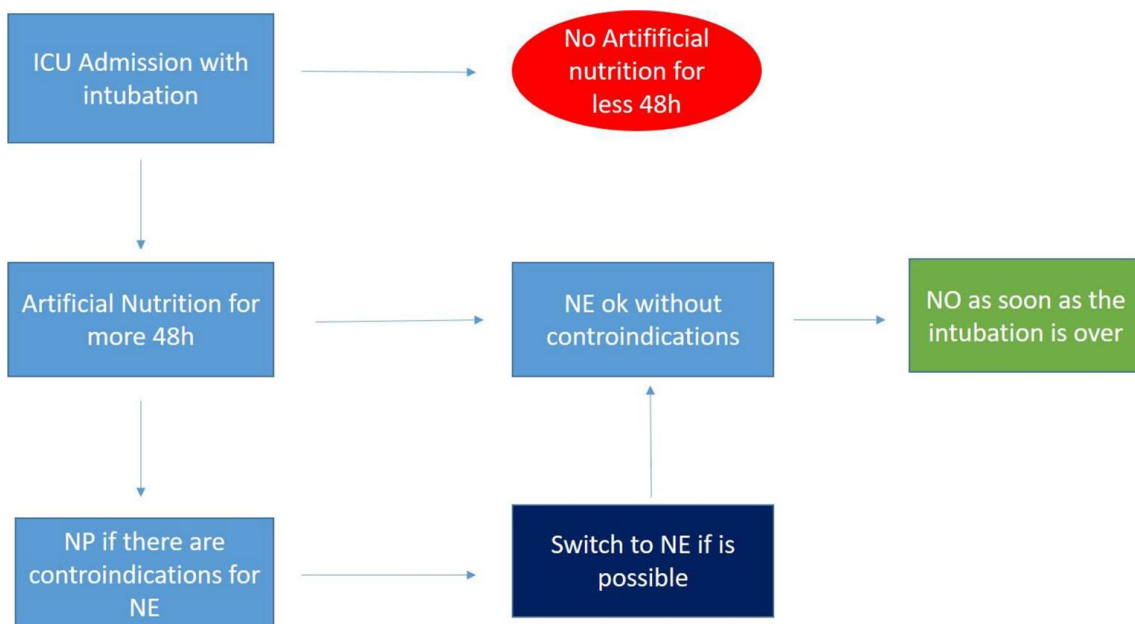
A review of the literature over the last 10 years from 2010 to the present has been carried out and it is evident that malnutrition together with low immunity and chronic diseases leads to a worse prognosis and mortality. Thousands of scientific articles report the fundamental role of clinical nutrition which should be the basic and first-line treatment to avoid aggravation of the clinical picture.

Results

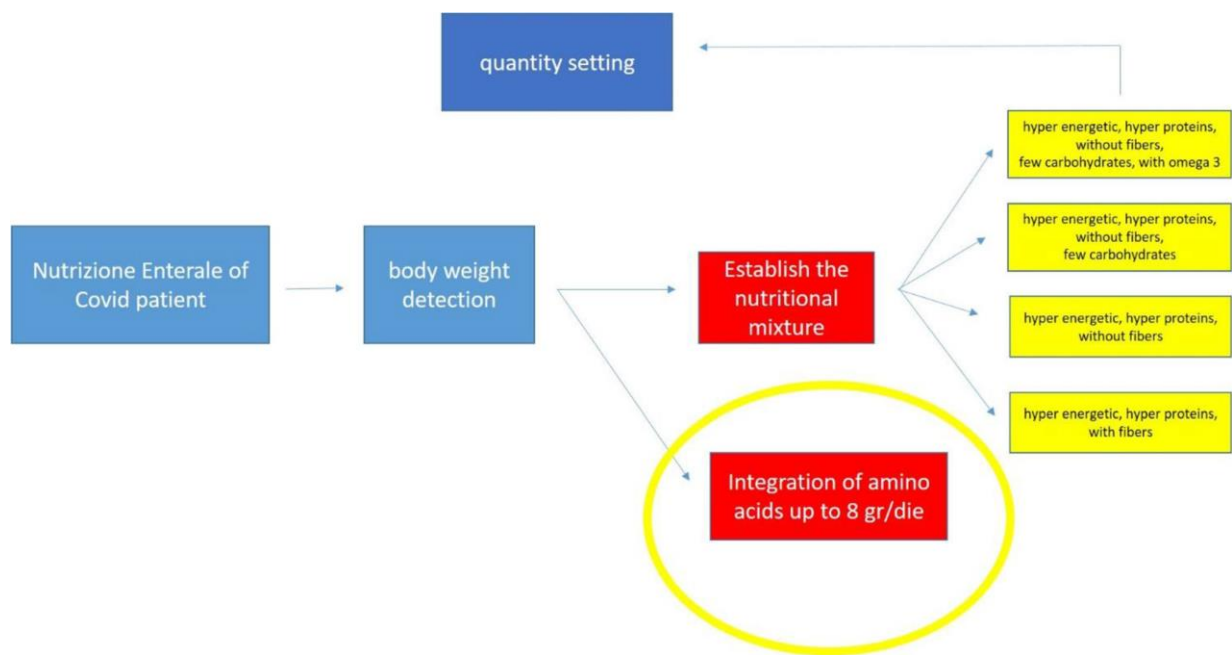
From the retrospective analysis of the literature, it is clear that all patients, after 48 hours of hospitalisation, regardless of initial body mass index (BMI) and age, experience a reduction in weight and muscle mass that can lead to sarcopenia. The use of amino acids reduced mRNA levels for TNF α , IL-1 β and IL-6 and reduced inflammation. The administration of arginine or glycine leads to a reduction in the expression of IL-6 and CXCL-1 with fewer neutrophils in the alveolar epithelium, thus having a regulatory effect on the lung.

Conclusions

With amino acid intake, there is improved functional muscle recovery and a significant reduction in necrosis factor (TNF) and a significant increase in both insulin-like growth factors without significant effects. These data indicate that dietary supplements with the oral amino acid mixture significantly increased lean body mass in elderly subjects with and without sarcopenia.



Oral, enteral, or parenteral nutrition depending on clinical conditions



Enteral nutritional support in the positive COVID patient

Referenze

- Caccialanza R, Laviano A, Lobascio F, Montagna E, Bruno R, Ludovisi S, et al. Early nutritional supplementation in noncritically ill patients hospitalized for the 2019 novel coronavirus disease (COVID-19): rationale and feasibility of a shared pragmatic protocol. *Nutrition*. 2020;74:110835. <https://doi.org/10.1016/j.nut.2020.110835>.
- Romano L, Bilotta F, Dauri M, Macheda S, Pujia A, de Santis GL, et al. Short report – medical nutrition therapy for critically ill patients with COVID-19. *Eur Rev Med Pharmacol Sci*. 2020;24:4035–9. https://doi.org/10.26355/eurev_202004_20874.
- Ma X, Zhang Y, Jiang D, Yang Y, Wu G, Wu Z. Protective effects of functional amino acids on apoptosis, inflammatory response, and pulmonary fibrosis in lipopolysaccharide-challenged mice. *J Agric Food Chem*. 2019;67(17):4915–22. <https://doi.org/10.1021/acs.jafc.9b00942>.