Food and nutritional recommendations for COVID-19 critically ill patients admitted to the ICU

To answer the questions, all direct (assessing in COVID-19) and indirect sources (assessing in SARS or MERS) are being reviewed.

Evidence evaluating the impact on the common cold has not been considered.

1. Nutritional support must be one of the major measures of comprehensive treatment for COVID-19 patients (13).

2. Although some guidelines recommend nutritional assessment of critically ill patients through NUTRIC Score (31, 32), ESPEN guidelines do not recommend establishing the risk of malnutrition based on this Score, but after the admission of more than 48 hours in the ICU (33). Most of the current guidelines recommend an early assessment of these patients’ nutritional risk and establishing nutritional support goals.

3. Despite the WHO has included the initiation of enteral nutrition within the first 24-48h at the ICU, according to a Cochrane review, the low quality of evidence, does not allow to clearly establish whether early enteral nutrition (within the first 48h), compared to late enteral nutrition (after 48h), affects the risk of mortality within 30 days, food intolerance, gastrointestinal complications or pneumonia (34). On their behalf, ESPEN suggests that nutritional therapy should be considered 48h after admission in the ICU (33).

4. The indicators to be monitored mainly include energy, protein and fluid balance maintenance (13). According to indirect evidence, oral diet versus enteral or parenteral nutrition is generally encouraged, and, according to the severity of the disease, it is recommended to supply 20-30 kcal/Kg/d (13). According to a Cochrane review, it is unclear that the prescription of hypocaloric nutritional support may be a beneficial approach in terms of mortality (in ICU or at 30 days), or during the length of ICU or hospital stay (35). Most guidelines consider that the protein requirement is suitable within the range of 1.2 to 2.0 g/kg/day. Critically ill patients present muscle atrophy due to increased protein catabolism, affecting survival and prognosis (13).

5. Due to the characteristics of admitted subjects (patients over 70 years old, loss of consciousness, poor oral care, prone position, gastroesophageal reflux) the risk of bronchoaspiration must be considered and the loss of the airway protection (13).

6. Because several COVID-19 patients presented microbial dysbiosis, it is possible that the use of prebiotics or probiotics (in food supplements with a type of strains) could prevent secondary infections due to bacterial translocation (30).

7. Indirect evidence from a Cochrane review suggests that there are uncertainties on whether or not critically ill patients should be supplemented with selenium to boost their immune system (36).

8. Indirect evidence from a Cochrane review suggests that there is moderate evidence regarding that glutamine supplements reduce the infection rate and the duration of mechanical assisted breathing, and there is low-quality evidence on reduced duration of hospital admission in patients presenting severe diseases. However, it seems to have little or no effect over the risk of mortality and the length of ICU stay. The effects over the risk of serious side effects were inaccurate (37).

Is there a nutrient or compound that may help to fight the virus in COVID-19 patients at the ICU?

It is unlikely that, for the management of COVID-19, an option would be to enhance the consumption of the nutrients indicated by the 'European Food Safety Authority' (EFSA) as nutrients with an approved health claim that contribute to the normal functioning of the immune system (copper, folate, iron, selenium, vitamin A, vitamin B12, vitamin B6, vitamin C, vitamin D and zinc; <https://ec.europa.eu/food/safety/labelling_nutrition/claims/register/public/> ). Therefore, their consumption SHOULD NOT be encouraged for this purpose. This conclusion is asserted even after carefully reviewing a review article on potential dietetic interventions on coronavirus (34), reinforced by the findings of a work on SARS, MERS and COVID-19 (35).

The effectiveness of the use of any other nutrient or compounds named nutraceuticals has not been assessed, including ferulic acid, lipoic acid, spirulin, N-Acetylcysteine, glucosamine, beta-glucans or elderberry to help fight the virus. This conclusion is asserted even after carefully reviewing a review article on potential interventions on coronavirus (25).

Can the consumption of herbs help to fight the virus in COVID-19 patients admitted to the ICU?

It is NOT recommended to consume any herb that guarantees efficacy to help fight the coronavirus. Using indirect evidence of SARS, a Cochrane review from 2012 concludes that the use of herbs from traditional Chinese medicine did not bring benefits for this pathology in terms of mortality (27), and the rest of the possible beneficial effects (improvement of symptoms) were called into question due to the poor quality of the evidence.