



## Editorial

# Nutrition in ICU Patients

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Stress catabolism and systemic inflammatory response is ubiquitous in critically ill patients. Multiorgan failure, various morbidities, and higher length of stay are commonly seen in the critically ill, especially in the current pandemic context. Nutritional importance in such critical-care settings is immense. Adequate nutrition care helps overcome the stress response and modulates the both innate and adoptive immunity favorably, loss of body muscle mass is attenuated, and metabolic complications are also controlled. Reduced morbidity rates, length of hospital stay, and better patient outcomes in patients with adequate nutrition care have made the nutrition support worthy in critical care settings, and are no more considered as adjunct but are therapeutic.<sup>1</sup>

Various physiometabolic changes due to critical illness increase the risk of patient becoming malnourished, which creates a vicious cycle and exacerbates the stress response. Inadequate daily calories/protein intake complicates it further. Early initiation of enteral nutrition (EN), within 24 to 48 hour of illness, is associated with significant benefits.<sup>2,3</sup> This can be done orally or via tube feeding, depending on achievement of nutritional adequacy goals.

Mesenteric ischemia and ileus are common, and hence monitoring gut function remains essential throughout the nutrition care. EN should be started in volume resuscitated patients, who are on stable/declining doses of vasopressors, but not in patients in shock. Starting feeding with trophic volumes (10–20 mL/h) is advisable and then gradually increasing it to meet 70% of target in 72 hours.<sup>1,2</sup>

Nutritional assessment done before starting feeding care forms an important part of nutrition care and should be done early. Available simple tools like subjective global assessment can be preferred in resource-limited settings. Use of nutrition risk screening (NRS) 2002 or nutrition risk in critically ill (NUTRIC) score can be preferred for nutritional assessment, if feasible.<sup>1</sup>

Decision on how much to feed is very important. Indirect calorimetry remains the gold standard for measuring energy requirements. Anthropometrics-based predictions are inaccurate. Simplistic weight-based equations can be used, as per the existing literature. The recommendations for daily calories/proteins change if the patient is obese.<sup>1,3</sup> High energy (25–30 Kcal/kg/day)/proteins (1.2–1.5 gm/kg/day) are recommended in nonobese patients.<sup>1</sup> Both underfeeding and overfeeding should be avoided. Early aggressive feeding may result in refeeding syndrome in malnourished critically ill patients.

Existing guidelines recommend initiating feeds via enteral route, unless contraindicated. It is more physiologic and helps to maintain structural–functional integrity of gut and symbiotic gut microbes are preserved. In cases of nutrition inadequacy with enteral routes, parenteral route can be utilized. Overfeeding, hyperglycemia, and infectious complications are key challenges, seen with parenteral nutrition.<sup>4</sup> Enteral feeding can be done via nasogastric, nasojejunal, or gastrostomy routes. Feed-related infections can be prevented by maintaining the hygiene and microbial safety of feeds.<sup>5</sup>

Continuous monitoring of nutritional tolerance is required. Factors affecting the desired nutrition goals in terms of total volume, energy, proteins, etc. should be identified and documented. Daily monitoring helps to improve tolerance. In all unconscious or ventilated or other high-risk patients, gastric residual volume (GRV) should be monitored 6 to 8 hourly with GRV below 300 mL considered as safe. Continuous feeding is recommended in above-mentioned patients.<sup>1</sup>

Micronutrient deficiencies are also evident in such patients because of preexisting malnutrition and polypharmacy.<sup>6</sup> Micronutrient deficiencies manifest as immune-depletion, poor wound healing, and higher morbidity/mortality. Hence,

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assessment of preexisting micronutrients' deficiency should be done.<sup>1</sup>

Severe acute respiratory syndrome coronavirus 2-induced respiratory failure has affected the entire world and majority of critical care settings beds are occupied by these patients. Good supportive care remains the cornerstone in managing critically ill patients with coronavirus disease 2019 (COVID-19). Timely and appropriate nutrition intervention remains an integral component. The nutritional management in critically ill COVID-19 patient should be like any other critically ill patient with respiratory failure.

In our country, there is nonuniformity of nutritional protocols to guide the practice and this has resulted in nutritional inadequacy, causing prolonged malnutrition, higher morbidity, increased stay in intensive care unit (ICU), and adverse clinical outcomes.<sup>1</sup> To maintain high standards of nutrition care, documentation of nutrition practices starting from nutritional diagnosis, assessment, intervention, and monitoring should be done. Couple of recent Indian guidelines (published in 2018 and 2019, respectively) on critical care nutrition published in *Indian Journal of Critical Care Medicine* faculties have tried to fill the gap in practical nutrition in our ICUs. These guidelines should be the guiding principles for nutrition intervention in our critical care settings.

#### Conflict of Interest

None declared.

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