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Nutrition in the ICU: The Power of Protein in Critically Ill Patients

Dr. Juan Ochoa:

For ReachMD, this is Audio Abstracts, produced in collaboration with Nestle Health Science, Empowering Healthier Lives Through Nutrition. I'm Dr. Juan B. Ochoa, a Surgeon, physician scientist, and former Chief Medical Officer of Nestlé Health Science, and, currently, I am the Medical Director of the Surgical Intensive Care at Oschsner Medical Center in New Orleans, Louisiana. Today, I will be reviewing a retrospective study completed in the Geisinger Healthcare Systems in Pennsylvania entitled "Increased Protein Delivery Within a Hypocaloric Protocol May Be Associated with Lower 30-Day Mortality in Critically Ill Patients."

If we look at the conventional way of feeding critically ill patients in the ICU, the goal is to blunt catabolism, or preserve muscle tissue and to maximize anabolism when, metabolically, the patient is able to do so. Very often, however, the patient cannot or will not volitionally consume adequate calories and protein to support their injury. For this reason, patients are often fed enterally or parenterally in the ICU, with the guiding mantra of "if the gut works, use it." But data since 2005 and beyond has shown that there is either harm or no benefit in just meeting caloric needs in the ICU. That is why the Geisinger team conducted a retrospective study of 2,000 mixed ICU encounters to find out whether or not this is true and to explore what potential benefits there may be to providing high-protein feedings.

The average age of patients in this study conducted within the Geisinger Healthcare System was 62 years old, and 55 % of the patients were male. The average time on mechanical ventilation was 4 days, and the median ICU length of stay was almost 7 days.

When these patients received an enteral formula containing 37% protein, 29% CHO and 34% lipids, the median daily calorie provision was lower while the median daily protein intake was increased. Based on these findings, my team concluded that using this type of very high protein, low CHO feeding prevented overfeeding of calories and better met the catabolic patient's protein demands.

But perhaps most importantly, my team also found that increasing protein intake led to lower post-discharge 30-day mortality, and that providing a formula that is lower in carbohydrate and higher in protein to meet the ASPEN/SCCM guidelines of 1.2-2.0g protein/kg body weight appeared to generate the best outcomes for critically ill patients. That's why, although it might sound counterintuitive, meeting caloric goals only in acutely ill patients does *not* prevent progression to malnutrition and, in fact, is associated with deleterious side effects during the first week of ICU stay. Additionally, most patients will do as well or better receiving 50 to 70% of their caloric requirements during the first week of the ICU. These findings, as well as those from other studies that have been conducted, should encourage us all to rethink the way we provide nutritional support in the ICU.

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