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CHICAGO AREA SOCIETY FOR PARENTERAL
AND ENTERAL NUTRITION

A Chapter of the American Society for Parenteral and Enteral Nutrition

The CASPEN Connection – Volume 11, Issue 2, Fall 2020



Letter from the President

Hello everyone,

Hope you are having a wonderful holiday season! What a year this has been.

Thank you for your continued interest and involvement in CASPEN. Our members truly drive our organization, and we are proud to be one of the largest chapters of ASPEN.

I am excited to announce that our new president for 2021 is Amber Smith. Amber has served as the treasurer for CASPEN over the past few years, and will work hard to continue to promote and grow this chapter.

Please let Amber or any of the board members know if you are interested in volunteering on one of our many committees. We would love to hear your ideas for future events, engagement opportunities, or thoughts on how to expand our network. Involvement in committees is a great way to meet other

nutrition professionals in your area, as well as contribute to the field of nutrition support.

It has truly been an honor serving as your CASPEN president this past year. I am looking forward to continuing to be a part of this wonderful organization, and to see what the board has in store for 2021!

Have a Happy New Year!

Stephanie Send, MS, RD, LDN, CNSC



CASPEN Member Spotlight

In this issue of the CASPEN Connection, we would like to highlight Kristen Nowak, MS, RD, LDN, CNSC.

Hey Kristen! Tell us about your education and background!

I received my undergraduate degree from the University of Illinois in Urbana-Champaign and majored in Food Science and Human Nutrition with a Dietetics concentration. I completed my internship and Masters in Clinical Nutrition at Rush University Medical Center. I have always been very interested in nutrition support and hoped to go into critical care nutrition. I briefly worked for Aramark in their corrections line of business before returning to Rush University Medical Center to pursue my passion in nutrition support.

What is your current role?

I currently work in the Medical Intensive Care Unit (which turned into our COVID ICU) at Rush University Medical Center and in the pediatric Cystic Fibrosis clinic. I also work with our students in their enteral and critical care rotations. I will be transitioning to more of an outpatient and research based role working with Cystic Fibrosis patients of all ages in the near future!

How was your role impacted by COVID-19 and how did you manage changes on your unit? Were you involved in protocol changes?

During the peak of COVID-19 all of our inpatient dietitians worked from home. This was a very big change to our normal work process and took some getting used to. I was in close communication with the physicians to ensure that my nutrition care plans were implemented on our patients. Our unit went from being a mix of oral, enteral, and parenteral nutrition to 100% of patients on either enteral or parenteral nutrition. The acuity of patients during this time was significantly higher and enteral and parenteral regimens were adjusted daily. Thankfully I had a great team of physicians, nurses, pharmacists, etc to help me stay in the loop with care plans and determine the best feeding regimen for all of our patients. I was involved in developing feeding protocols for these patients and stayed in close



communication with the team even though I was unable to attend rounds in person.

How did you become interested in nutrition support?

I remember being introduced to the field of nutrition support during one of my undergraduate classes and being very interested in this area almost immediately. When I completed the critical care portion of my internship I knew this was the field of dietetics that I wanted to go into. Helping patients who are unable to meet nutrition needs orally is a passion of mine and I like working closely with the interdisciplinary medical team. I also really enjoy all of the math and science involved in determining appropriate nutrition support prescriptions.

What is the member benefit you utilize most with CASPEN and what do you gain from CASPEN membership?

I really enjoy the interdisciplinary meetings that we have. It is great to meet members that work in different hospitals and different areas of the nutrition support field to see what they are doing at their institutions. Everyone is always sharing great ideas and I feel like I learn something new every time we all get together.

What do you like to do in your free time?

In my free time I spend a lot of time with my 10 month old daughter. It is so fun watching the world through her eyes and watching her grow and develop. Becoming a mother has been such a blessing and I feel so lucky to get to experience this. When I am not with my daughter I like to work out and drink wine (but not at the same time).

Shaina Ohm



Kristen Nowak

Did you miss our last few events?

Nutritional Management of Patients with COVID-19, October 2020

Shaina Ohm, RD, LDN
Kristen Nowak, MS, RD, LDN, CNSC

In October 2020, we had the pleasure of hearing from both Shaina and Kristen regarding the nutritional management of patients with COVID-19. This webinar not only provided background information on the virus, but it also discussed appropriate nutrition assessment of these patients. It was interesting to hear their perspectives on nutrition-focused physical exam during this time of required personal protective equipment. Our speakers discussed the goal timing of nutrient delivery, specifically relating to enteral nutrition support, in addition to having a lower threshold for starting parenteral nutrition in this high risk population. Appropriate macronutrient dosing and nutrition monitoring were discussed. We learned about proning therapy and enteral nutrition provision during proning, the impact of hemodynamic instability, and the use of propofol in many of these ICU patients. Thank you to our speakers for a wonderful and educational talk!

Nutritional Management for Patients Requiring the Ketogenic Diet, December 2020

Kelly Roehl, MS, RD, LDN, CNSC
Ilana Nurko, MS, RD, LDN, CNSC

Our second fall webinar focused on the ketogenic diet and its efficacy in a variety of patient populations. In addition to its use in refractory epileptic patients, a plethora of research has begun to focus on the diet's efficacy in patients with type 2 diabetes, cancer, obesity, and neurodegenerative disorders. A detailed breakdown of the four primary ketogenic diet styles, as well as the diet's proposed protective mechanism of action was discussed. It was interesting to learn that some of the common concerns surrounding the diet, such as hyperlipidemia, have actually been invalidated in recent research. Lastly, Kelly led an interactive case study to show participants how to implement the diet in clinical practice and create a ketogenic tube feeding regimen. Thank you to our speakers for an amazing and educational presentation.



Ilana Nurko



Kelly Roehl

Nutrition therapy and critical illness: Practical Guidance for the ICU, post-ICU, and long-term convalescence phases

van Zanten, Arthur Raymond Hubert, De Waele, E., & Wischmeyer, P. E. (2019). Nutrition therapy and critical illness: Practical guidance for the ICU, post-ICU, and long-term convalescence phases. *Critical Care (London, England)*, 23(1), 368. doi:10.1186/s13054-019-2657-5

Introduction. Over many years, medical innovations within the ICU have resulted in the reduction of mortality. However, while the rate of mortality has declined, the functional status of ICU survivors remains poor. Increasing rates of patients post-ICU experience long-term or potential life-altering disabilities, leading to a decreased quality of life. In 2012, Needham et al. defined post-intensive care syndrome (PICS), the term used to express declining overall health problems in patients after a critical illness that remain past the hospitalization period. To improve the quality of life for ICU patients, providing proper nutrition therapy within the ICU and post-ICU has been suggested. This would focus on delivering precise doses and appropriate timing of nutrition therapy. Among ICU patients, these methods are vital as constant metabolic changes occur throughout recovery. There is little research regarding the metabolic needs of ICU patients and proper nutrition. Thus, the purpose of this narrative review was to analyze nutrition therapy throughout three phases: ICU, post-ICU, and the long-term convalescence phase.

ICU Nutrition Therapy Overview. Nutrition therapy in the ICU is framed by guidelines set by the European Society for Clinical Nutrition and Metabolism (ESPEN). These guidelines recommend early enteral nutrition (EEN) as the preferred method to meet patients nutritional needs. The NUTRIREA-II trial composed of circulatory shock patients, found that EEN stimulated gut mucosa when analyzing their post-hoc analysis. During ICU hospitalization, patients with critical illness often experience inflammation, increased energy needs due to catabolic responses, and insulin resistance. Providing proper nutrition therapy is challenging among patients who have a critical illness because the increase of nutrients has to be gradual to prevent overfeeding. To determine caloric needs, the gold standard, indirect calorimetry, is used.

ICU Phase. When patients are admitted to the ICU, the first few days of care are vital. As aforementioned, EEN should be started. Progressive feeding throughout the first three days is recommended to prevent overfeeding which could exacerbate patient's symptoms or complications. It is recommended that patients intake roughly 70-80% of their calories gradually compared to eating a larger amount earlier on during their recovery. Staying within that range helps to prevent episodes of hyperglycemia as seen in both the TARGET and EAT-ICU trials.

High amounts of protein in the early stages of recovery should be avoided to limit potential nitrogen imbalance due to loss of lean muscle mass. However, after the first three to four days, early protein administration is said to be beneficial as it improves survival within the ICU. Throughout this phase in the ICU, the ESPEN guidelines recommend 1.3 g/kg/day of protein. Both caloric and protein needs should be met through enteral nutrition (EN). With EN, it has been stated that semi-elemental formulas should be avoided. Hydrolyzed or pre-digested formulas should be utilized, yet there is no research stating one is more effective than the other. Enteral protein supplements or supplemental amino acid solutions are recommended to help meet protein demands throughout the early days of recovery in the ICU.

Post-ICU Phase. Moreover, limited guidelines exist relative to proper nutrition therapy for patients post-ICU. The most important aspects to focus on post-ICU include proper maintenance of caloric and protein intake. These components are continually emphasized as they are sought to enhance patient recovery and recover loss of muscle mass. Metabolic needs are increased during this phase as seen through the use of indirect calorimetry. Therefore, more calories and protein are needed which in turn, will help reduce mortality. Optimal protein intake should be within 1.5 – 2.5 g/kg/day. Optimal calories change daily, but should continually increase over time during the patient's recovery. Since multiple changes occur post-ICU, it can be challenging for patients to meet their caloric and protein demands orally. When transitioning from EN or PN to an oral diet, patient's typically do not consume an adequate number of calories. These ICU patients can experience functional changes throughout the course of their recovery such as loss of appetite, difficulty swallowing or chewing, and issues with digestion and satiety, making eating a taxing event. Therefore, it has been suggested that

patients keep their feeding tube in until optimal nutrients needs are met. Close provision of oral food intake and education on proper care once discharged is advantageous in the stage of recovery.

Long Term Convalescence Phase. During the last phase of recovery, consuming enough calories and protein is essential. Data suggests that oral nutrition supplementation (ONS) post-discharge for ICU patients should be of high importance. Oral nutrition supplementation has been found to decrease mortality rates, complications during hospitalization, and hospital costs. This supplementation helps patients to meet their calculated caloric and protein needs. After being discharged from the hospital, post-hospital high protein ONS for at least three months has been recommended. The high caloric and protein demands due to episodes of hypermetabolism and catabolism should be targeted with proper nutrition tied with exercise for optimal recovery. Some studies have looked into the use of propranolol, a catabolic agent, to reverse hypermetabolism for patients who are critically ill (mainly burn patients). It was found that propranolol is the single, most-effective, agent when trying to treat severely burned patients. More research is still needed regarding burn patients in the ICU and propranolol, as well as, the use of catabolic and anabolic agents to restore muscle mass.

Conclusion. Early provision of enteral nutrition is recommended in ICU patients to meet their nutrient needs. Throughout the early stages of ICU care, the progressive approach to feeding should be utilized to prevent episodes of overfeeding. During each phase, maintaining proper calories and protein is crucial. Use of oral nutrition supplements has been proven beneficial in providing patients with adequate amounts of protein throughout their recovery. In the post-ICU discharge convalescence phase, this remains important as compliance to a high protein oral diet is challenging. Obtaining the appropriate amounts of calories and protein is stressed, as they prevent muscle loss and improve functional ability, leading to a better overall quality of life. Overall, more research is still needed relative to metabolic changes in ICU patients along with anabolic and catabolic agents used within the ICU setting. Nutrition therapy remains an important component in overall care when treating these ICU patients.

Article Reviewed By:

• **Mary Kate McCarthy, Dietetic Intern & Masters Candidate**
• **Rush University Medical Center**

- Mary Kate is currently a second-year graduate student and dietetic intern at Rush University Medical Center. She graduated with her bachelor's degree in Kinesiology and Health Sciences from Miami University. Her Master's Research Project is investigating the effectiveness of an advanced infant feeding protocol in the NICU. She is interested in the NICU, pediatrics, and oncology. Mary Kate enjoys cooking and entertaining, trying new restaurants, traveling, Irish dance, and babysitting in her spare time!



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