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A Chapter of the American Society for Parenteral and Enteral Nutrition
The CASPEN Connection – Volume 10, Issue 1, Winter 2019

Letter from the President

Hello everyone!

Hope you are all staying warm this winter. I am so excited to serve as your CASPEN president for the year of 2019!

Thank you all for your continued interest and involvement in CASPEN! We are so lucky to have such devoted members. Our members drive our organization and we are proud to be one of the largest chapters of ASPEN.

Please let me know if you are interested in volunteering and being on one of our many committees. We are always looking for more people to expand our network. Getting involved is a great way to meet people, stay up to date, and contribute to the field of nutrition support.

We wrapped up last year with a half day seminar entitled "Nutritional Management of the Gastrointestinal Patient." We were lucky to have speakers from multiple disciplines give us their take on managing complicated nutrition support patients. We were honored to have Ainsley Malone, MS, RD, CNSC, FAND, FASPEN, former ASPEN president, speak to us about her experience with nutrition support!

We have some great events planned for you this upcoming year. Our spring dinner meeting will be held in the northern suburbs and will feature two dietitians who specialize in the field of trauma and burns. We look forward to seeing you at this event!
Sincerely,

Kristen Nowak, MS, RD, LDN, CNSC

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CASPEN Member Spotlight

In this issue of the CASPEN Connection, we would like to highlight Danielle Hom, MS, RDN, LDN.

Hey Danielle! Tell us about your education and background!

I grew up outside of Boston, MA and completed my B.S. in dietetics at Boston University. After my undergraduate degree, I decided it was time for a new city! I applied to DICAS and matched with Rush University's coordinated M.S. in clinical nutrition and dietetic internship program in Chicago, IL. Having my graduate classes and internship rotations all on the same campus made everything very convenient as my professors and preceptors were all in the same location. It also allowed for my classwork to align with my clinical rotations well. This program was one of the most demanding and intensive experiences I've ever had, but I learned so much and had opportunities to spend additional time in specialties I was interested in. I am especially fascinated with nutrition support and completed my staff relief in the MICU. As part of the master's degree, I researched sarcopenia and sarcopenic obesity in patients with colorectal cancer. Although requiring extensive work and time, this was a great experience of combining research and writing to produce a published paper. I am now reworking my thesis with the goal of having it published in JPEN next year.

What is your current role?

I currently work as a clinical dietitian at Mt. Sinai hospital covering a general medical floor and two acute inpatient rehabilitation floors. The patient population I usually work with is chronic disease, substance abuse, and post-trauma patients. I enjoy seeing these patients; I think that it is a good mix between providing diet educations and counseling as well as nutrition support.

How did you become interested in nutrition support?

Enteral and parenteral nutrition was something I was not very familiar with going into my dietetic internship. I like that nutrition is especially vital for these patients who require alternate routes of nutrition. I was lucky to have the opportunity to rotate in the neuro ICU, medical ICU, and surgical ICU as an intern to gain experience with nutrition support. I have always loved math so enteral and parenteral nutrition allow me to use calculations to

ensure I am providing enough calories, protein, micronutrients, and fluid to patients. As an intern, I was able to practice TPN prescriptions of both macro- and micronutrients with dietitians who held CNSC qualifications. I think TPN is fascinating because it is like a puzzle to figure out what a patient needs and continuously adapting the content based on the patient's response.

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

I think having the opportunity to meet other dietitians in the Chicago area and network with them is the greatest benefit. It is so interesting to see the different career paths people took with their dietetics education. There are so many different directions and applications to nutrition and it will only continue to grow. I love that nutrition will always be relevant and applicable to everyone.

What is your favorite restaurant in Chicago?

There are SO many great restaurants in Chicago! Some of my favorite are Sushi Dokku, Girl and the Goat, Orso's, and Beatnik. These are restaurants I have been to multiple times, but I still love trying new restaurants and interesting foods.

Ainsley Malone, MS, RDN, LD, CNSC, FAND, FASPEN

Marisa Mozer, MS, RD, LDN, CNSC, CSO

Did you miss our last event?

This fall, CASPEN hosted their annual half day seminar. The theme of this year's seminar was: "Nutritional Management of the Gastrointestinal Patient". The event was unique in that speakers were chosen from all areas of nutrition support, including a physician, pharmacist, and dietitians working in both inpatient care and home nutrition support. The keynote speaker was Ainsley Malone, who travelled all the way from Ohio to give a wonderful presentation on "ASPEN Safe Practices for Enteral Nutrition Therapy". Our immediate past president, Marisa Mozer, gave an interactive presentation on placing bridles for nasoenteric tube securement. Attendees even had the opportunity to practice placing the bridles themselves on nose models! Between speakers, attendees spent time visiting several of our sponsor booths or enjoying snacks catered by Panera. CASPEN had a great turnout this year and the board is looking forward to hosting our spring event next year!

Don't miss our Spring Dinner Meeting on Wednesday, April 3rd!!!

Join us on April 3rd from 6-8 pm at Farmhouse Evanston (703 Church St, Evanston IL, 60201), which is a 5 minute walk from the Metra station. This event will focus on nutritional management of the trauma/burn patient and information will be presented by Valerie Reynolds, MS, RD, LDN, CNSC, CSO and Jen Larson, MS, RD, LDN, CNSC. We look forward to seeing you there!

Get Involved!!!

Are you interested in writing a review for the CASPEN Connection? Contact us at caspenboard@gmail.com or send us an inbox message via our Facebook page at http://bit.ly/2p4Cl4U!

Review of Literature: A Randomized Trial of Supplemental Parenteral Nutrition in Underweight and Overweight Critically Ill Patients: The Top-Up Pilot Trial

Wischmeyer PE, Hasselman NM, Kummerlen C, et al. A randomized trial of supplemental parenteral nutrition in underweight and overweight critically ill patients: the TOP-UP pilot trial. J Crit Care. 2017;21(142).

Introduction. Many international guidelines supporting early initiation of enteral nutrition (EN) support in the intensive care unit (ICU) setting exist. However, reports show that only half of daily calories prescribed from EN are given over the first 12 days in the ICU. For this reason, parenteral nutrition (PN) has been increasingly utilized (35-70%) to ensure adequate calorie provision in critically ill patients. The European Society for Clinical Nutrition Metabolism (ESPEN) recommends initiation of PN within 24-48 hours in critically ill patients unexpected to receive full oral nutrition within 3 days. Furthermore, supplemental parenteral nutrition (SPN) is suggested if EN is not at goal rate within 48 hours. Dissimilarly, the American Society for Parenteral and Enteral Nutrition (ASPEN) and the Society of Critical Care Medicine (SCCM) hesitate in recommending early PN use within the ICU setting, warranting acceptable use after 7 days of admission for well-nourished patients. Considering the prevalence of malnourished ICU patients, research supports PN use upon ICU admission in patients with a Nutrition Risk in Critically Ill (NUTRIC) score > 5. Current guidelines are conflicting regarding recommendations for the use of PN in the early phase of critical illness. In a previous multicenter observational study, the amounts of energy and protein received early in ICU patients affected mortality for inadequate nutrition intake amongst those with body mass indices (BMIs) of <25 or >35. Thus, the purpose of this study was to determine if increased nutrition delivery via SPN + EN given to underweight and obese patients improves 60-day survival and quality of life (QoL) versus EN alone.

Methods. A total of 125 participants were included in this multicenter, pilot controlled study. Critically ill adult patients were considered eligible if they were expected to receive >72 hours of mechanical ventilation, were receiving EN or were to be initiated on EN within 48 hours of ICU admission, and if they had a BMI of <25 or >35 based on pre-ICU actual body weight or estimated dry weight. Eligible participants were then randomized to receive either the EN only (control) intervention or the SPN + EN (study) intervention within 72 hours of ICU admission. Enteral formula was determined by individual treatment teams following nutritional assessment and prescription by a dietitian. Nutrient delivery and advancement for EN and PN were standardized within each group and per BMI stratum. The primary outcome of this study was to achieve a 30% increase in calorie and protein delivery in the SPN + EN intervention group. Calorie and protein delivery was analyzed in patients with BMIs <25 and >35 and within surgical ICU patients versus medical ICU patients. Functional outcomes were assessed at admission and discharge via Barthel Index, handgrip strength, and 6-minute walk test (only at discharge). Nutritional risk was measured and determined using NUTRIC scores (> 5 being high risk). Outcomes of QoL were measured at 3 and 6 months post-randomization via telephone interview using a 36-Item Short Form Health Survey (SF-36).

Results. Over the first 7 days of randomization, patients within the study group experienced a 26% increase in protein and calorie delivery compared to a 22% increase within the control group ($p < 0.001$). Within the study group, surgical ICU patients experienced a significant increase in calorie and protein delivery when compared with medical ICU patients (38% vs. 18% and 35% vs. 13%, respectively; $p< 0.05$). Patients with a BMI >35 had an increase of calorie and protein delivery versus those with a BMI <25, though not statistically significant (31% vs. 21% and 25% vs. 18%, respectively). Decreased hospital mortality was observed in the study group versus control group (OR 0.60, 95% CI 0.24-1.52; $p = 0.28$). Trends of reduced mortality in the study group were amongst high nutritional risk patients (NUTRIC score > 5 and in BMI <25; p =

0.19), though neither were found to be statistically significant. No significant differences were found in high nutrition risk (NUTRIC score > 5) patients with a BMI >35. Additionally, trends of improved functional and QoL outcomes amongst the study group, though insignificant.

Discussion. Results from this study indicate that calorie and protein delivery are significantly increased during the first ICU week when using SPN + EN versus EN alone. Results also demonstrated that SPN + EN may benefit high nutritional risk patients with a NUTRIC score of > 5 and patients with BMIs <25. Therefore, early SPN delivery may be of greatest efficacy in patients with lower BMIs at high nutrition risk. This indicates enrollment of high nutrition risk patients in future studies using early SPN. Although insignificant, trends in hospital/ICU mortality, QoL, and functional outcomes were observed within the SPN + EN group. This suggest the use functional and QoL endpoints in addition to nutrient delivery in subsequent early nutrition support intervention studies. Interestingly, early SPN showed no increase in infection risk as well as a significant increase in calorie and protein delivery specifically to surgical ICU patients. Non-pure-soy-oil based lipid formulation used within PN in this trial may have contributed to lack of infection risk. A future early SPN trial comparing high nutritional risk surgical and medical ICU patients may demonstrate the deficit in EN delivery alone amongst surgical ICU patients and its outcomes. One limitation of this study is the calorie and protein prescriptions were determined using weight based formulas. Future studies should consider use of indirect calorimetry to more accurately predict nutrition prescription in critically ill patients as well as to reduce the risk of over-and underfeeding. Assessing functional and QoL outcomes was limited due to patient inability to complete, death, and disability after ICU stay. Difficulty measuring these endpoints remains a limitation amongst many ICU studies and should be further considered by subsequent trials.

Conclusion. Provision of SPN + EN significantly increased calorie and protein delivery over the first ICU week when compared to EN alone. Additionally, provision of SPN + EN versus EN was associated with positive trends in hospital mortality, ICU mortality, and quality of life, with no increased risk of infection from PN. This study warrants a trial of high nutrition risk ICU patients with use of SPN and a NUTRIC score > 5 in order to objectively measure malnutrition with optimal use of SPN. Future research should also examine functional outcomes of poorly EN-fed surgical ICU patients.

Article Reviewed By:

Brenna Wallace, Dietetic Intern & Masters Candidate
Rush University Medical Center

Brenna is currently second-year graduate student and dietetic intern at Rush University Medical Center. She graduated with her bachelor degree in Dietetics from Michigan State University. Her thesis at Rush is investigating the association between vitamin D status and pulmonary exacerbations in adult and pediatric patients with cystic fibrosis. She is interested in neurology, critical care, nutrition support, and research. Brenna enjoys doing Core Power yoga, creating recipes, trying new restaurants, blogging, and getting involved with social media communications in her spare time!

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A huge shout-out to last year's board of directors and cheers to 2019! We are always looking for volunteers to help with our committees. Please email caspenboard@gmail.com with questions!