Causes and Consequences of Interrupted Enteral Nutrition: A Prospective Observational Study in Critically Ill Surgical Patients

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**Why:** Malnutrition and underfeeding are major challenges in caring for critically ill patients. An estimated 30-50% of ICU patients do not meet their daily energy and protein requirements. Current evidence suggests that while early initiation of feeding is beneficial, sufficient provision of calories and protein is required to optimize benefits. Early and sufficient delivery of calories and protein in ICU patients has been shown to influence clinically relevant outcomes such as ventilator-free days, ICU and hospital length of stays, wound healing, incidence of nosocomial infections, and mortality. Patients in surgical ICUs (SICUs) are underfed to a greater degree than their medical counterparts. The primary focus of this study was to characterize interruptions in enteral nutrition (EN) delivery in a SICU. Researchers hypothesized that, in the context of an aggressive EN protocol, interruptions in EN are largely unavoidable.

**How:** In the January edition of the Journal of Parenteral and Enteral Nutrition, Peev et al published the results of a prospective, observational cohort study involving patients from 2 SICUs in a large teaching hospital. This prospective, observational cohort study involved patients from 2 SICUs in a large teaching hospital. Patients included were 18 years of age or older and received EN for >72 hours. Excluded were ICU patients (1) with an ICU stay of <72 hours, (2) who had a previous
ICU stay within the same hospitalization, (3) who had received EN prior to ICU admission, and (4) admitted with an intestinal obstruction.

The SICUs chosen had an aggressive EN protocol. EN was initiated within 48 hours of admission unless absolutely contraindicated. Tolerance was evaluated by recording gastric residual volumes (GRV) every 4 hours with EN held only for GRV >500 ml. Periprocedural EN was permitted if (1) a controlled airway was in place, (2) a supine operative position was maintained, and (3) interventions did not involve the airway or GI tract.

All interruptions in EN were recorded except for transient (<10 minute) interruptions for ICU-related activities. Interruptions for (re)intubation/extubation, tracheostomy/PEG tube placement, GI surgery, and GRV >500 ml were considered unavoidable. Data on protein and energy intake from enteral and parenteral feeds were recorded daily for a maximum of 14 days, until initiation of oral intake, discharge from the ICU, or death (whichever occurred first).

**Results:** A total of 94 SICU patients were included in the study. When comparing patients who had 1 or more EN interruptions (group 1, n = 64) with those who had no interruptions (group 2, n = 30), there was no significant difference in age, admission serum albumin level, APACHE II and DCCI scores, total number of days receiving EN, total complications, ventilator-free days, the use of parenteral nutrition, initiation of EN within 48 hours of ICU admission, and mortality. Patients in group 1 had a higher mean daily caloric deficit (608 ± 473 kcals vs 346 ± 276 kcals, P = .001) and a greater mean cumulative caloric deficit (5834 ± 4641 kcals vs 3066 ± 3223 kcals, P = .001). The 3 most common reasons for EN interruption were (1) (re)intubation/extubation, (2) tracheostomy/PEG tube placement, and (3) the need for an imaging study. Approximately 26% of all EN interruptions were considered avoidable events, such as inappropriate holding of EN for GRV <500 ml or for procedures that met criteria for periprocedural EN. Patients in group 1 accumulated almost double the calorie deficit, stayed in the ICU for an additional 1.5 days, and remained hospitalized longer than patients without a single interruption (group 2).

**Impact:** This study provides novel insight into specific areas of improvement for existing EN protocols that may help optimize nutritional status in SICU patients. Previous studies of mixed ICU cohorts (both medical and SICU patients) have identified underprescription and high GRV as major factors contributing to interruptions in EN. This study, focusing only on SICU patients and using a high GRV threshold (>500 ml), found that “high” GRVs accounted for only 9% of all EN interruptions. In the setting of a SICU with an aggressive EN protocol, most EN interruptions were categorized as unavoidable. Hence, in this particular subset of patients, it may be beneficial to focus on methods to enhance nutrition delivery in the setting of expected interruptions rather than on efforts to eradicate interruptions.
On Thursday, October 22, the Southeast Chapter of the Society of Critical Care Medicine was honored to have representatives from the Vanderbilt ICU Delirium and Cognitive Impairment Study Group including Dr. James Jackson, Dr. Joanna Stollings, and Aimee Hoskins present during our monthly meeting about Post-Intensive Care Syndrome (PICS).

During the meeting, Dr. Jackson reviewed the PICS model as well as strategies to meet the needs of ICU patients both during admission and after the period of critical illness. PICS describes new or worsening impairments in physical, cognitive, or mental health status arising after critical illness and persisting beyond acute care hospitalization.

Patient stories of symptoms of post-traumatic stress disorder (PTSD) as well as that of persistent delusional memories were discussed.

Strategies to improve PICS included the ABCDEF Bundle Checklist from the ICU PAD Guidelines, protocols for early mobility therapy, keeping an ICU diary, minimizing inappropriate medication prescriptions after an ICU stay, and specialized post-ICU care clinics.

If you missed this excellent presentation, you have another chance to view it by clicking here.

Congratulation to our Past President, Barbara McLean!

Join us in congratulating our past president and current board member, Barbara McLean, MN, RN, CCNS-BC, NP-BC, CCRN, FCCM, for being awarded a prestigious Dr. Joseph and Rae Brown Award.

The Dr. Joseph and Rae Brown Award recognizes an SCCM member who has significantly advanced multiprofessional quality care for critically ill and injured patients at the regional or local level. The recipient of this award has made extraordinary contributions of time, energy, and resources to chapter and/or affiliate matters during the previous year, demonstrated dedication, commitment, and outstanding contributions to the field of critical care at a regional or local level during the past year, has shown exceptional leadership contributions that have furthered the vision and mission of chapters and/or affiliates over time, has offered innovation or meritorious contributions that improve the care provided to critically ill and injured patients and their families in the recipients country, state, or region, and has been an outstanding clinician/teacher and a role model of excellence in both the teaching and clinical practice of critical care in the regional or local area (not just his or her institution).

We are proud to say that Barbara exemplifies ALL of these qualities and is a well-deserved candidate for such honor. We hope you can join us at the National SCCM Meeting in Orlando and support Barbara as she receives the award.
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Please take time to support our Southeast Chapter members at this year's Congress. Information for chapter members' posters was obtained through a voluntary survey. Authors who are current chapter members are in red.

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The Southeast Chapter of the Society of Critical Care Medicine proudly presents a bi-monthly lecture and discussion on “Nutrition in the ICU, When, Where and How - What The New Data Tells Us!”

Physician, nursing, pharmacist and dietitian CE/CME credits will be provided.

Guest Speaker
Beth Taylor, DCN, RDN, LD, CNSC, FCCM
Nutrition Support Specialist
Barnes-Jewish Hospital, St. Louis, MO

Thursday, December 10, 2015 | 5:30 – 7:30 P.M. EST
Grady Memorial Hospital | Trauma Auditorium
Ground floor, main hospital (near Pratt street)
80 Jesse Hill Jr. Drive SE, Atlanta, GA 30303

Dinner | Networking | Exhibitors Booths 5:30 – 6:00 P.M.
Keynote Speaker Presentation/Discussion 6:00 – 7:00 P.M.
Q&A | Raffle Announcement | Closing 7:00 – 7:30 P.M.

Registration is required for dinner. This event is not commercially sponsored. Register today.
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Thank you to our co-host:
Gaspen - Georgia Society for Parenteral and Enteral Nutrition
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THURSDAY, FEBRUARY 4, 2016
The Southeast Chapter of the Society of Critical Care Medicine
Bi-Monthly Lecture and Discussion
Topic: New Reversal Strategies for the New Oral Anticoagulants
Details will be provided in the near future.

MONDAY, FEBRUARY 22, 2016, 8:30 A.M.
Annual Southeast Chapter Business Meeting
Orlando, FL
Conference Room to be announced

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