JUNE Meeting In Review

TOPIC: Building An Inpatient Code Sepsis Team: It Takes A Village

Written by Andrea Sikora Newsome

On June 9, 2017, the Southeast Chapter of Critical Care Medicine hosted Carmen Polito, MD, MSc, Sherika Kimbrough, RN, MSN, and Barbara McLean, MN, RN, CCRN, CCNS-BC, FCCM (pictured above in photo order) of Grady Memorial Hospital in Atlanta, GA with a focus on how to build an inpatient code sepsis team.

The team highlighted the importance of both early identification and timely treatment of sepsis.

One strategy that has been proposed to expedite both the recognition and treatment of these patients has been the development of inpatient code sepsis teams that respond house-wide to patients that potentially meet sepsis criteria.

They discussed their experiences of developing such a team at Grady Memorial Hospital.

If you missed this very informative session, please visit our website at www.sccmse.org and search for title under events or archives.
On August 9th we held our bimonthly meeting and welcomed SCCM president Ruth Kleinpell, PhD, RN, FCCM to Grady Memorial Hospital in Atlanta, Georgia. A Lunch and Learn was hosted where Dr. Kleinpell spoke to a multi-disciplinary team on various initiatives by SCCM with a focus on preventing burnout in the ICU setting. Everyone left feeling inspired to bring new initiatives to their workplace.

In the evening, Dr. Kleinpell spoke on conducting research in the field of critical care and the different challenges that are often faced. She emphasized that research not only includes focused topics but also quality improvement initiatives.

The reality of critical care research is that critical care providers are faced with an increasing direct patient care load that must take precedence over research opportunities.

Additional barriers include the intimidation conducting “research” to the frontline staff, which can be overcome by rephrasing this to “clinical projects.” Application of a study to changing clinical practice is also difficult for many clinicians.

Dr. Kleinpell also discussed how administrative support and a multidisciplinary team are crucial for research and practical application of clinical findings.

Skills to foster research in an institution include a research committee to help identify projects that could be initiated. Finding a good mentor is key when conducting research.

Using hospital resources like a clinical IT department or administrative research support may also be an important part of data collection.

Clinicians shouldn’t be afraid to publish pilot studies as these often contribute to broader research. The limitations and obstacles faced during these study can lead to improvements in future attempts.

Ways to excite clinical staff about research is to leave journals in ICU break rooms to keep staff up-to-date.

Additionally, providing one page bathroom reviews can also help staff quickly learn new studies.

Finally, Dr. Kleinpell also discussed the different ways to keep up with literature, such as Wiki Journal Club, the pharmacy journal club through SCCM, and Annals of Internal Medicine journal club.

If you missed this session, please visit our website at www.sccmse.org and search for title under events or archives.

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Alternative Fish Oil-Containing Lipid Injectable Emulsions in Critical Illness

Written by Maria Sheridan, PharmD, BCNSP, Maria.sheridan@fresenius-kabi.com

Alternative Fish Oil-Containing Lipid Injectable Emulsions in Critical Illness
Maria Sheridan, PharmD, BCNSP

Lipids are an integral component of parenteral nutrition (PN). They provide the body with a source of fuel and fatty acids (FAs), which are necessary for the formation of cell membranes and biochemical mediators. Introduced in 1961, the first successful lipid injectable emulsion (ILE) was made from soybean oil (SO) and provided a breakthrough in PN.1 This first-generation ILE was made available in the US in 1975, and initially used to prevent essential fatty acid deficiency (EFAD). Clinical practice has since evolved to include lipids as an energy source, due to the dangers of excessive dextrose provision, such as hyperglycemia and hepatic steatosis.2,3 However, complications such as exaggerated inflammatory response in the critically ill, reticuloendothelial system suppression, and liver dysfunction were identified and attributed to the high ω-6 FA content in SO.3-5 Omega-6 FAs are precursors to pro-inflammatory eicosanoids and may promote their overproduction and increase oxidative stress in sepsis and trauma. Subsequent generations of ILEs utilize alternative oil sources to reduce ω-6 FA content and provide FAs that exert more favorable effects on immune function and inflammatory status.3

Alternative ILEs have been utilized in Europe for over 30 years, but remained unavailable in the US until recently. Oil sources in these products include medium chain triglyceride (MCT) oil, olive oil (OO), and/or fish oil (FO). MCT oil provides a source of FAs that are readily oxidizable for energy and lack pro-inflammatory properties. OO provides a more immune neutral source of ω-9 FAs and a small amount of essential fatty acids (EFAs). FO provides ω-3 FAs with less pro-inflammatory and inflammatory-resolution properties.4 FO is either added as a supplement to ILEs or included in commercially manufactured products, constituting the fourth-generation of ILEs. All generations of ILEs must contain or are indicated to be utilized in conjunction with SO, as it is an excellent source of EFAs, linoleic acid and α-linolenic acid. A fourth-generation ILE composed of SO/MCT/OO/FO was FDA-approved for use in adults in 2016 and is commercially available in the US.6

During critical illness, pathophysiological modifications occur due to acute stress. This catabolic state causes impaired immune function and altered inflammatory response. Alternative ILEs may differentially modulate immune and inflammatory reactions depending on their FA composition.7 The ω-3 FAs in FO, eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA), are precursors to less pro-inflammatory eicosanoids, as well as specialized pro-resolving mediators (SPMs).8,9 Therefore, use of alternative ILEs with supplementary FO are of interest in the critically ill population.

Literature on FO-containing ILEs in critical illness is limited to trials which have small sample sizes and utilize varying doses of FO in conjunction with different oil sources, making it challenging to compare formulations.4,7 Results of individual studies show decreased cytokine levels in sepsis, decreased CRP and shifts to less pro-inflammatory leukotriene levels in ICU patients when including FO.10-12 Meta-analyses comparing FO-containing ILEs to non-FO-containing ILEs in ICU and post-surgical patients give precision to outcomes evaluated in smaller studies. Significant decreases in infections are seen in separate meta-analyses performed by Pradelli, Wei, Chen, Li, Manzanares, and Bae.13-18 Significant decreases in ICU length of stay (LOS) were reported by Pradelli, Wei, and Chen, and in a subgroup analysis of high quality studies evaluated by Manzanares.13-15,17 Palmer reported significantly reduced hospital LOS but no difference in ICU LOS or frequency of new infections.19

Current US guidelines have not been updated to reflect approval of alternative ILEs, including the most recent from SCCM/ASPEN on nutrition support in the critically ill from 2016. These guidelines state “when these alternative [ILEs] [SMOF [SO, MCT, OO, and FO emulsion], MCT, OO, and FO] become available in US, based on expert opinion, we suggest that their use be considered in the critically ill patient who is an appropriate candidate for PN”.20 In countries where alternative ILEs have been used for many years, the guidelines are more specific. European guidelines state “addition of EPA and DHA to lipid emulsions has demonstrable effects on cell membranes and inflammatory processes. FO-enriched lipid emulsions probably decrease length of stay in critically ill patients”.21 Canadian guidelines recommend “when PN with intravenous lipids is indicated, IV lipids that reduce the load of ω-6 FAs/so emulsions should be considered. However, there are insufficient data to make a recommendation on the type of lipids to be used [to do so] in critically ill patients receiving PN”.22

When using different lipid emulsions, it is necessary to note product differences to ensure appropriate dosing and administration. Of the two available ILEs in the US, caloric content is equivalent based on the total grams of lipid (continued on next page)
Alternative Fish Oil-Containing Lipid Injectable Emulsions in Critical Illness (continued from previous page)

provided. However, EFA content varies significantly, as SO/MCT/OO/FO ILE contains less than pure SO. In order to ensure adequate EFA provisions based on adult recommendations, 13-25% of total calories should be provided from SO/MCT/OO/FO ILE on a daily basis compared with 8-10% of total daily calories or a minimum of 100 g of SO per week.23,24 All ILEs should be administered with a non-DEHP, non-PVC IV administration set due to leaching of plasticizers from the line caused by the fat emulsion. In addition, all ILEs should be administered with a 1.2 micron in-line filter.6,25-27

The recently approved FO-containing ILE provides another lipid option with a less pro-inflammatory FA profile for the critically ill adult in need of PN. In the meantime, there is still a need for more research on alternative ILEs and it is essential for us to publish our experiences in order to fill literature gaps and provide the best possible care for our patients. Future research may also bring us new insights on the role of specific nutrients, including ω-3 FAs, as pharmaconutrition. Areas of interest include ω-3 FA modulation of the inflammatory response in critically ill populations such as cardiac surgery, and the effects of SPMs on clinical outcomes such as physical function.28,29 The optimal dose of ω-3 FAs still needs to be determined, as it varies in clinical trials, but shows encouraging improvements in clinical outcomes in the range of 0.1-0.2 g/kg/day.30

Currently available ILEs are both safe and effective sources of calories and EFAs for adult PN patients. Alternative FO-containing ILEs may be beneficial in critical illness, as meta-analyses have consistently shown decreases in infection and LOS. The inclusion of ω-3 FAs in PN may improve the balance of nutritional provisions and lead to advancements in patient care.

5. Tabor E. As the FDA begins to address new types of lipid emulsions for parenteral nutrition: using the basis for approvals in past years as a springboard for discussion. Nutr Clin Pract 2013;28:770-2.
Congratulations to Lara Mason, Recipient of The Barbara McLean Contributions to Critical Care Excellence Award
Written by Marina Rabinovich, PharmD, BCPS

Lara Mason, RN has been selected as the 2017 recipient of The Barbara McLean Contributions to Critical Care Excellence Award Winner! Lara is a pediatric critical care nurse at Children’s Healthcare of Atlanta.

The Barbara McLean Contributions to Critical Care Excellence Award recognizes a nurse in the southeast region who exemplifies the values of the SCCM: A Model Based on Collaboration, Contribution, Evidenced-based Communication and Collegiality. The award was established to honor Barbara McLean for her contributions to the national society as well as her work in organizing and sustaining the Southeast Chapter of SCCM.

Emergency Neurological Life Support (ENLS) Courses Hosted in June & August, Written by Lizzette Hernaiz, MSN, ACNP-BC, FNP-C

On June 14 and August 13, 2017 the Southeast Chapter of the SCCM hosted Emergency Neurological Life Support (ENLS) courses in Atlanta, GA.

The ENLS course is designed to help healthcare professionals improve patient care and outcomes during the critical first hours of a patient’s neurological emergency. ENLS demonstrates a collaborative, multi-disciplinary approach and provides a consistent set of protocols, practical checklists, decision points, and suggested communication to use during patient management.

To register for an upcoming session, please visit https://sccmse.org/register-now-to-become-enls-certified/

Pharmacists at Augusta University Medical Center Turning the ICU Blue
Written by Ashley Mayer, MS, RD, LD

The Southeast Chapter of Critical Care Medicine celebrated National Critical Care Awareness and Recognition Month at locations throughout the Southeast. Members were encouraged to “Turn their ICU Blue” by wearing blue on Friday, May 19, 2017. Our chapter sponsored treats to celebrate this day in hospitals in Atlanta, Memphis and New Orleans with the help of member liaisons. Members received badge holders in the mail as a token of appreciation for their contributions to critical care. We look forward to many more celebrations next May.
Our 4th Annual Spike Out Sepsis event took place on August 26, 2017, and together we raised over $9,000 for Sepsis Alliance!

With nine teams, this year was our best and most fun tournament yet.

Funds raised will be used by Sepsis Alliance for the national sepsis awareness programs.

For the second year in a row, we would like to extend a special thank you to our Platinum Sponsor, Grady Health System, for an additional donation of $1,000 towards our event costs.

Without their support our event would not be possible. Thank you Grady!

Shout out to this year’s tournament champs, Grady Rehab!

And another special shout out to Spiked Punch for raising the most money with over $2,000 raised!

We are looking forward to our 5th Annual event next year! If you are interested in helping plan next year’s event, please email communications@sccmse.org with subject line “Spike Out Sepsis 2018”.
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TOPIC OF DISCUSSION
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Thursday, December 14, 2017

LIVE LOCATION
Chattanooga

PRESENTER
Lisa Harrison

TOPIC OF DISCUSSION
Early Mobility in the ICU

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Want to become more involved? For members interested in joining a committee, please contact us at communications@sccmse.org, and let us know how we can get you involved with the Southeast Chapter of SCCM.