Title of Topic: Immune-modulating enteral formulas vs. a standard enteral product in acutely ill adults

Stance: Pro - Standard enteral formulas


Discussion of Topic:

Enteral nutrition support in the critically ill population was considered only as supplementary care. Initially it was designed to provide merely basic nutrients in order to preserve lean body mass, maintain immune function, and avoid metabolic complications. Over the past decade, various nutrients have been added to the standard enteral formulas in attempt to satisfy the exponentially increasing goals of nutrition therapy. Only individually and in specific patient conditions have these nutrients been proven beneficial, but there hasn’t been extensive research done to support a fixed mixed formula to suit every patient.

The article reviewed, Immunonutrition in Critically Ill Patients: a Systematic Review and Analysis of the Literature, examined 24 clinical trials with ICU, burn and trauma patients (Marik, P. E. et al, 2008). Patients were enterally fed with immune-modulating formulas. The formulas were enhanced with different nutrients and various combinations of nutrients including: arginine, glutamine, and fish oil. The analysis of the results demonstrated that the immune-modulating formulas supplemented with arginine with/without additional glutamine or fish oil do not offer an advantage over standard enteral formula in ICU, trauma and burn patients (Marik, P. E. et al, 2008). Specifically one study including an arginine supplemented immune-modulating formula increased
mortality in general ICU patients, many of who had sepsis or the SIRS (systemic inflammatory response syndrome) (Heyland, D. K. et al, 2003). These authors base their conclusions on the concept that critically ill patients are hemodynamically unstable and in an inflamed state in which iNOS is up regulated. Consequently, the delivery of arginine containing formulas, also increase the up-regulation of iNOS thus increasing nitric oxide concentration (Zhou, M. et al, 2007). Increased NO production will increase tissue injury and trigger cardiovascular collapse in patients with sepsis and SIRS (Heyland, D. K. et al, 2003).

**Bottom Line:**

Organizations such as, the American Society for Parenteral and Enteral Nutrition (A.S.P.E.N.), American Dietetic Association (ADA), and the Canadian Clinical Practice Guideline Committee, caution routine use of immune-modulating formulas in the general, critically ill population due to the lack of evidence to support their use. Future studies that include large sample sizes would be beneficial to evaluate the effectiveness of these formulas.

**Opportunities for the RD/DTR:**

Dietetic professionals should be aware that nutrients such as antioxidants, fish oils, etc may be beneficial in certain situations, but the combination of nutrients in immune-modulating formulas do not suit every patient. Therefore, it will be important to pay attention to the dosing, timing, and route of administration of these various nutrients and formulas.
References

