A Summary on the Current Research Surrounding Updated 2016 ASPEN Guidelines on the Usage of Probiotics in Severe Acute Pancreatitis in the Critical Care Setting

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Evidence to Date Contributing to Current ASPEN Guidelines

Meta-Analyses

Zhang et al (2010)

Significant heterogeneity of studies assessed. No significant difference in postoperative or pancreatic infections, SIRS, length of antibiotic therapy, or mortality. Reduced length of stay.

Gou et al (2014)

Significant heterogeneity of studies assessed. No significant benefits or adverse outcomes.

Poropat et al (2015)

Significant heterogeneity of studies assessed. With the 2008 Besselink study excluded, EN inclusion of probiotic in pancreatitis lead to lower risk of mortality, organ failure, and local septic complications.

Probiotic Only

Besselink et al (2008)

N = 298

Increased risk of mortality, infectious complications, bowel ischemia, and surgical intervention.

NJ delivery of *P pentosaceus, L mesenteroids, L paracasei,* ***L plantarum 299***

Qin et al (2008)

N = 74

PN patients compared to PN + probiotic-containing EN. EN treatment group colonized w/fewer pathogenic organisms. Fewer incidences of (+) blood culture, antibiotic usage, paralytic ileus, and GI bleed.

NJ delivery of ***L plantarum 299***

Prebiotic Only

Karakan et al (2007)

N = 30

Treatment group had shorter hospital stay, fewer overall complications including MOF, cholangitis, sepsis, pseudocysts, and death with statistical significance. By individual complication, power was insufficient to demonstrate results.

NJ delivery of 0.7g/100mL soluble; 0.9g/100mL insoluble.

Total = 24g fiber/patient/day

Probiotic + Prebiotic

Olah et al (2002)

N = 45

Reduced risk of infection and length of stay in treatment group.

NJ delivery of ***L plantarum 299*** with oat fiber substrate.

Olah et al (2007)

N = 62

Treatment group experienced lower incidence of septic complications, mortality; but was not statistically significant. Incidence of SIRS, MOF, overall recovery w/o complications was significant.

NJ delivery of *P pentosaceus, L mesenteroids, L paracasei,* ***L plantarum 299***; 10g fiber/patient/day (inulin, pectin, resistant starch)

2016 ASPEN Guideliens Recommendation L5

"We suggest that the use of probiotics be considered in patients with severe acute pancreatitis who are receiving early EN. [Quality of Evidence: Low] (1)"

- Heterogeneity and limited quantity of studies conducted contributes to low quality of evidence.
- Research suggests probiotic may result in positive outcomes in severe pancreatitis patients, however medical professionals should exercise caution.
- In sum, inclusion of probiotics in severe pancreatitis treatment should not be a first line of defense, and patients should be made aware of possible complication should facilities choose to use it as treatment.

Inclusion of Probiotic May Reduce:

- ✓ Overall mortality
- ✓ Infectious complications
- ✓ Organ failure
- ✓ Surgical intervention
- ✓ Incidence of ileus
- ✓ Antibiotic usage
- ✓ Length of stay

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