

059 The addition of glutamine and immune-modulating nutrients to enteral feeds: is there an effect on patient mortality? A. R. Saalwachter, MD; J. Claridge, MD; K. F. Willcutts, MS, RD, CNSD; A. E. Radigan, RD, CNSD; K. O'Donnell, MS, RD, CNSD; J. R. Camden, BA; T. W. Chong, MD; H. L. Evans, MD; S. T. McElearney, MD; R. S. Smith, MD; L. M. Gazoni, MD; H. A. Farinholt, MD; C. C. Norman-

Heuser, BA; S. M. Lowson, MD; B. S. Schirmer, MD; R. G. Sawyer, MD; University of Virginia, Charlottesville, VA.

Background: Studies have failed to consistently demonstrate improved survival in intensive care unit (ICU) patients receiving immune-modulating nutrient enhanced enteral feeds when compared to standard enteral feeds. Existing literature, particularly animal studies, supports the use of glutamine supplementation to improve morbidity from infection. **Purpose:** To study in a prospective fashion the effects of glutamine-enhanced enteral feeds, immune-modulating nutrient feeds (supplemented with *n*-3 fatty acids, nucleotides and amino acids such as glutamine and arginine), and standard tube feeds on patient outcomes in the surgical ICU of a university hospital, testing the hypothesis that the addition of glutamine and immune-modulating nutrients to tube feeds would improve patient mortality. **Methods:** All surgical and trauma patients admitted to the surgical ICU at a university hospital over a three year period who were to receive enteral feeds (*n*=184) were included in the study. Sequential assignment to three diets was performed as follows: standard 1-kcal/cc feeds with added protein (Group 1), standard feeds with the addition of 20-40 gm/day of glutamine (Group 2), or an immune-modulated formula with similar addition of glutamine (Group 3). The goal for all patients was 25-30 kcal/kg/day and 2gm/kg/day protein. Patients were followed until discharge from hospital. The primary outcome was in-hospital mortality; secondary endpoints included ICU length of stay (LOS) for survivors, hospital LOS for survivors, number of days requiring mechanical ventilation for survivors, and number of episodes of infection. The number of hospital days prior to starting tube feeds, number of days the subjects received tube feeds, and the average protein and calories received over the first week were also measured. Data were analyzed by χ^2 analysis or Student's t-test. **Results:** In-hospital mortality for the group randomized to control tube feeds, Group 1, was 6.2% (4/65), versus 17.7% (11/62, *p*=0.055) for Group 2 and 15.8% (9/57, *p*=0.14) for Group 3; mortality in the control group was significantly less when compared to the combined study groups, 16.8% (20/119, *p*=0.042). There were no statistically significant differences between the groups for ICU LOS, hospital LOS, days of mechanical ventilation, number of infections, number of days to starting tube feeds, or number of days of tube feeds. Protein received in the first week differed significantly between Groups 2 and 3 (1.18 gm/kg/day and 1.45 gm/kg/day, respectively, *p*=0.001). Mean number of calories received in the first week differed between the three groups: Group 1, 17.0 kcal/kg/day; Group 2, 14.5 kcal/kg/day; and Group 3, 20.0 kcal/kg/day (*p*<0.05 for each group versus each of the other two groups). **Conclusions:** Contrary to our initial hypothesis, the addition of glutamine to standard enteral feeds and the use of immunomodulatory formulas enhanced with glutamine appeared to result in higher hospital mortality with little difference in secondary outcomes. Protein and calorie intake did not correlate with mortality. Further in-depth analyses of patient risk factors (trauma, active infection, etc.) that may have affected these outcomes need to be defined.