Should Peri-operative Immune-Modulating Nutrition Therapy be Standard of Care? A Systematic Review of the Evidence

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INTRODUCTION

Peri-operative Immune Modulating Formulas Decrease Infection Rate and Length of Stay in Major Surgery

-Immunomodulating nutrients (i.e. arginine and omega-3 fatty acids) alone and in combination can alter nutritional, immunological, and inflammatory parameters and potentially reduce infection and hospital LOS in surgical patients
-This data demands a large, multi-center, trial of immunemodulating nutritional intervention in the peri-operative period

PURPOSE

-All prospective randomized trials from MEDLINE, EMBASE, Biosis, and CINAHL published between 1999 and 2008 comparing arginine-containing immune modulating enteral nutrition therapy vs. standard therapy were abstracted and reviewed.
-Primary studies were included if they:
  (1) were RCTs;
  (2) studied critically ill or surgical patients;
  (3) compared enteral nutrition supplemented with any combination of arginine, glutamine, omega-3 fatty acids, or nucleotides compared with standard enteral nutrition; and
  (4) included clinically important outcomes, such as mortality, infectious complications, and LOS.
-The analysis included 28 trials and 3,055 patients
-Statistical analysis was performed using RevMan 4.2

METHODS

RESULTS

CONCLUSION/DISCUSSION

-Perioperative immune-modulating therapy:
  -decreases infection rate in the peri-operative period in patients having major surgery
  -decreases LOS in the peri-operative period in patients having major surgery
  -The mechanism of benefit appears to relate to prevention of arginine deficiency, preservation of T-cell function and prevention of immune suppression following physical injury (Surgery, trauma)
-Arginine deficiency does not consistently occur in sepsis and arginine’s use in sepsis can not be supported as safe or efficacious by currently available data
-This data would support the use of peri-operative immunemodulating formulas to be considered as standard of care for major GI, ENT, and cardiac patients to reduce post-operative infections and hospital LOS
-This data demands a large, multi-center, trial of immunemodulating nutritional intervention in the peri-operative period