

STUDY SUMMARY

Immunonutrition vs. Standard Nutrition for Cancer Patients: A Systematic Review and Meta-Analysis

Yu K, Zheng X, Wang G, Liu M, Li Y et al.
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Objective:

Determine efficacy for immunonutrition (IM) vs. standard nutrition by analyzing 61 RCTs studying patients (n=5983) having major elective surgery for cancer.

Methods:

The majority of studies were enteral and involved various types of GI cancer surgery, however pulmonary and head & neck cancer surgery data were also included. IM formulas contained at least one supplemental immunonutrient. The majority of enteral studies utilized formulas containing a blend of L-arginine, n-3 fatty acids and nucleotides (IMPACT®). Funnel plots and the Cochrane Risk of Bias assessment tool examined studies for risk of bias.

Results:

Although differences in all-cause mortality and sepsis were not found, IM was associated with significantly reducing the risk of postoperative infectious complications (RR 0.71 [95% CI, 0.64-0.79]), including wound (RR 0.72 [95% CI, 0.60-0.87]), respiratory tract (RR 0.70 [95% CI, 0.59-0.84]) and urinary tract (RR 0.69 [95% CI, 0.51-0.94]) infections. A significantly decreased risk for anastomotic leak (RR 0.70 [95% CI, 0.53-0.91]) and reduced hospital stay (MD -2.12 days [95% CI -2.72 to -1.52]) was also observed.

Subgroup analyses were extensive and included a formula comparison by immunonutrient(s). Arginine + n-3 fatty acids + nucleotides were found to reduce the risk of surgical site and respiratory infections by 36% ($p=0.00$; see table) and 39% ($p=0.001$), respectively. This combination was also associated with a mean reduction in hospital stay of 3-days ($p<0.00001$).

Risk of Surgical Site Infection				
Immunonutrient(s)	# Studies	n	Effect Est.	p-value
n-3 fatty acids	7	470	0.93 [0.57, 1.52]	0.76
Glutamine	3	597	0.80 [0.48, 1.33]	0.38
Arginine + n-3	3	309	0.87 [0.37, 2.02]	0.74
Arg + Gln	2	93	0.65 [0.22, 1.92]	0.43
Arg + n-3 + nucleotides	23	2718	0.64 [0.50, 0.82]	0.000
Arg + Gln + n-3 + nucleotides	2	388	0.99 [0.40, 2.45]	0.99

Adapted from Table 3

Other sub-analyses looking at nutritional status, duration and timing of IM, energy dose, enteral vs. parenteral, etc. were also completed. No suggestion of publication bias was found.

Conclusion:

Provision of perioperative IM (5-7 days) containing supplemental L-arginine, n-3 fatty acids and nucleotides to malnourished surgical cancer patients via the GI tract and within total energy provision of 25-30 kcal/kg/d may provide the highest degree of clinical efficacy.

Please use the link below to access the article:

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Summary prepared by Nestlé Health Science

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