

4.1 b.(ii) Composition of Enteral Nutrition: Fish oil supplementation*

March 2013

NEW SECTION in 2013

Recommendation:

There are insufficient data to make a recommendation on the supplementation of fish oils alone in critically ill patients

Discussion: The committee noted the single centre nature of the study and the lack of treatment effect on outcome. The data were considered to sparse to make any treatment recommendations

DRAFT

Semi Quantitative Scoring

Values	Definition	2013 Score (0,1,2,3)
Effect size	Magnitude of the absolute risk reduction attributable to the intervention listed--a higher score indicates a larger effect size	0
Confidence interval	95% confidence interval around the point estimate of the absolute risk reduction, or the pooled estimate (if more than one trial)--a higher score indicates a smaller confidence interval	1
Validity	Refers to internal validity of the study (or studies) as measured by the presence of concealed randomization, blinded outcome adjudication, an intention to treat analysis, and an explicit definition of outcomes--a higher score indicates presence of more of these features in the trials appraised	3
Homogeneity/Reproducibility	Similar direction of findings among trials--a higher score indicates greater similarity of direction of findings among trials	n/a
Adequacy of control group	Extent to which the control group represented standard of care (large dissimilarities = 1, minor dissimilarities=2, usual care=3)	2
Biological plausibility	Consistent with understanding of mechanistic and previous clinical work (large inconsistencies =1, minimal inconsistencies =2, very consistent =3)	2
Generalizability	Likelihood of trial findings being replicated in other settings (low likelihood i.e. single centre =1, moderate likelihood i.e. multicentre with limited patient population or practice setting =2, high likelihood i.e. multicentre, heterogeneous patients, diverse practice settings =3.	2
Cost	Estimated cost of implementing the intervention listed--a higher score indicates a lower cost to implement the intervention in an average ICU	2
Feasible	Ease of implementing the intervention listed--a higher score indicates greater ease of implementing the intervention in an average ICU	2
Safety	Estimated probability of avoiding any significant harm that may be associated with the intervention listed--a higher score indicates a lower probability of harm	2

* refers to fish oil supplementation alone (not with borage oil, antioxidants)

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Question: Does supplementation with fish oils result in improved clinical outcomes in the critically ill adult patient?

Summary of evidence: There was one level 2 study used a fish oil only supplement as a bolus (Stapleton 2011) in patients with acute lung injury. There were 7 studies that looked at fish oil, borage oil, antioxidants, and these are covered under section 4.1 b-i Fish Oils, Borage Oil, antioxidants

Mortality: Fish oil supplementation alone had no effect on hospital mortality (RR 1.20, 95% CI 0.55, 2.59, $p=0.65$) or 60 day mortality (RR 0.90, 95% CI 0.42, 1.91, $p=0.78$).

Infections: There were no differences in the incidence of sepsis between the two groups.

LOS: Fish oil supplementation alone was associated with a significant reduction in ICU length of stay (WMD -5.50, 95% CI -10.80, -0.20, $p=0.04$) but had no effect on hospital length of stay (WMD -4.60, 95% CI -12.68, 3.48, $p=0.26$).

Duration of ventilation: Fish oil supplementation alone was associated with a trend towards a reduction in duration of mechanical ventilation (WMD -4.30, 95% CI -8.87, 0.27, $p=0.07$).

Other complications: There were no significant differences in multi-organ dysfunction score between the two groups.

Conclusions :

- 1) Fish oil supplementation vs placebo has no effect on mortality or infections in patients with ALI.
- 2) Fish oil supplementation vs placebo is associated with a significant reduction in ICU length of stay but has no effect on hospital length of stay.
- 3) Fish oil supplementation vs placebo is associated with a trend towards a reduction in duration of mechanical ventilation.

Level 1 study: if all of the following are fulfilled: concealed randomization, blinded outcome adjudication and an intention to treat analysis.

Level 2 study: If any one of the above characteristics are unfulfilled.

Table 1. Randomized studies supplementation with fish oils in critically ill patients

Study	Population	Methods (score)	Intervention	Mortality # (%)		Infections # (%)‡	
				Fish oil	Standard	Fish oil	Standard
1) Stapleton 2011	ALI patients (Trauma, sepsis, PNA, shock) from 5 ICUs N=90	C.Random: Yes ITT: Yes Blinding: Yes (12)	Fish Oil (9.75g EPA, 6.75g DHA/day x 14 days as bolus q 6 hrs) vs. 0.9% Saline isonitrogenous diet	Hospital 10/41 (22) RR 1.20, 95% CI 0.55, 2.59, p=0.65 60 day 9/41 (23) RR 0.90, 95% CI 0.42, 1.91, p=0.78	Hospital 10/49 (20) 60 day 12/49 (24)	Sepsis 1/41 (2)	Sepsis 1/49 (2)

Study	LOS (days)		Ventilator days		Other
	Fish oil	Standard	Fish oil	Standard	
1) Stapleton 2011	ICU 11.9 ± 10.6 (41) WMD -5.50, 95% CI -10.80, -0.20, p=0.04 Hospital 23.0 ± 18.3 (41) WMD -4.60, 95% CI -12.68, 3.48, p=0.26 ICU free days 12 ± 11 Hospital free days 23 ± 19	ICU 17.4 ± 14.8 (48) Hospital 27.6 ± 20.6 (48) ICU free days 11 ± 10 Hospital free days 27.5 ± 22	8.6 ± 9.0 (38) WMD -4.30, 95% CI -8.87, 0.27, p=0.07 Vent free days 14.8 ± 10	12.9 ± 12.2 (45) Vent free days 14.0 ± 10	Nutritional Intake in 1 st week 7362 ± 3800 kcal 7495 ± 3831 kcal

C.Random: concealed randomization
 ITT: intent to treat
 # assumed to be hospital mortality unless specified
 ‡ refers to the # of patients with infections unless specified
 ± () : mean ± Standard deviation (number)
 NR: not reported