Debate: Nutritional Support VS Metabolic Manipulation in the Cancer Patient

CON

Ken Fearon
How to manage cancer cachexia?

NUTRICEUTICALS/

Nutrition versus Nutrition

DRUGS/

Ken Fearon

Pancreatic cancer - EPA - omega-3 fatty acids

Kent Lundholm
DEBATE

• What is cancer cachexia?
• What causes cancer cachexia?
• Does nutrition alone suffice?
• Can specific nutrients down regulate the metabolic response to cancer?
• Can combination therapy improve QoL?
• Advantages of nutritional pharmacology versus drugs
Aetiology of Cancer Anorexia

* pain
* depression, anxiety
* hypogeusia, hyposmia
* taste and food aversions
* chronic nausea, vomiting, early satiety
* malfunction of the GI system
* metabolic changes
* cytokines/prostaglandins
* tumour-specific factors

Chemotherapy/radiotherapy
Suboptimal Response to Nutritional Support

- Tumour
  - stimulation of growth
  - tumour activity as a nitrogen trap

- Host
  - persistent systemic inflammatory response
  - persistent effects of catabolic mediators
The Effect of Fatty Acids on Immune Function

Fatty Acid

Membrane Phospholipids

Physical Change

Eicosanoids

Signal Transduction Pathway

Gene Expression

Receptors

Enzymes

Cytokines

Immune Cell Function
Weight change after EPA enriched nutritional supplement in cachectic pancreatic cancer patients

Prestudy median rate of weight-loss: 2.9 kg/month

Median weight-gain at 3 weeks: 1 kg
Median weight-gain at 7 weeks: 2.5 kg

p = 0.024
p = 0.028
The effect of EPA enriched nutritional supplement on body composition in cachectic pancreatic cancer patients

- Lean body mass
- Fat mass
A prospective multi-centre randomized double-blind trial comparing the efficacy of an n-3 fatty acid enriched oral supplement with that of an isonitrogenous isocaloric oral supplement in weight-losing pancreatic cancer patients

200 patients

105

conventional oral supplement (500mls 610Kcal 32g protein)

95

EPA-enriched oral supplement (500mls 610Kcal 32g protein 2.2g EPA)
Change in LBM (kg/months) in cachectic pancreatic cancer patients before and after randomisation to high protein sip feed ± EPA

- **control**
- n-3 fatty acid enriched

- Baseline
- 4 Weeks
- 8 Weeks

* p=ns between group comparisons
** p<0.001 compared with baseline
Summary

• nutrition alone can attenuate cachexia

• nutrition plus nutriceuticals can both reverse cachexia and improve quality of life (with minimal side-effects) in a proportion of patients
Advantages of Nutriceuticals

- endogenous substrates
- readily detoxified
- wide therapeutic range
- few idiosyncratic reactions
- low cost
Protocol

6g eicosapentaenoic acid daily after 4 week dose escalation

27 patients with unresectable pancreatic cancer

- Weight
- Body composition
- Survival
### Study Protocol

Cachectic patients with advanced pancreatic cancer given 2 cans EPA enriched nutritional supplement per day

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<th>Baseline</th>
<th>3 weeks</th>
<th>7 weeks</th>
<th>11 weeks</th>
<th>15 weeks</th>
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<td>Body composition</td>
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No Major Treatment - Related Adverse Events

No references provided by the author(s)