

Issue 53 In a nutshell

A meta-analysis shows that nutrition support has benefits for morbidity and mortality across a wide range of patients.

Nutrition support and clinical outcome

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NUTRITION RESEARCH REVIEW

Study one: routine nutrition support

Giving nutrition support for supplemental protein and energy (whether by oral or enteral route) not only improves nutrition status but enhances survival in a wide range of adult patients. This is the conclusion of a comprehensive review of scientific randomised trial evidence which has just been published in the British Medical Journal.

The authors conducted a systematic review of randomised controlled trials of oral or enteral protein supplementation in adults, in a wide range of age groups and clinical states. These varied from "healthy" to chronically ill, and included elderly and younger subjects. The 30 trials they analysed collectively involved more than 2,000 patients.

The combined results of these 30 trials showed that patient groups which received routine nutrition support had consistent benefits (see table). Interestingly, these benefits were (statistically) similar regardless of the type of patient, the nature of the illness and the duration of treatment sub-groups.

The authors pointed out that, whilst the benefits were consistently shown, limitations in the evidence mean that there remain considerable uncertainties.

Ref: *BMJ* 1998;317:495-501

Study two: TPN in AIDS

Total parenteral nutrition (TPN) can offer significant clinical benefit in terms of weight gain for malnourished AIDS patients, but the fat content is important in ensuring that there are no adverse immune effects.

Table: Meta-analysis of benefits of nutrition support

Outcome	Odds ratio	(95% CI)
Body weight	2.06%	(1.63-2.49)
Mid-arm muscle circumference	3.16%	(2.43-3.89)
Risk of death	0.66	(0.48- 0.91)

French researchers conducted a prospective, randomised double-blind multicenter study on 33 AIDS patients, all of whom needed TPN because of wasting and reduced oral intake. They were randomly allocated to receive 6 days treatment with one of two IV lipid TPN emulsions. One was based on long-chain triglycerides, whilst the other had a balanced emulsion of long- and medium-chain triglycerides (both providing 2 g/kg/d of lipids, as well as carbohydrate and protein). Tests of immune and lymphocyte function were performed before and after treatment.

After one week of treatment, both patient groups had a significant increase in weight. However, patients treated with long chained triglycerides only showed a significant decrease in phytohemagglutinin A response ($p = .04$) compared with baseline. Patients in the mixed triglyceride group had a higher CD4/CD8 lymphocyte ratio, but this was not significant ($p = .07$).

Ref: *Journal of Parenteral and Enteral Nutrition* 1998;22:67-71

Comments

These two trials illustrate both the potential and the frustration that accompanies the science of nutrition support.

Although there is now a huge body of experience in this field of clinical nutrition, with countless published studies (indeed at least one journal devoted to it), the Scottish reviewers were only been able to find 30 trials of adequate quality in the area of 'routine' non-parenteral nutrition support.

Happily, their conclusion from these 30 studies was positive. This evidence suggests that, by and large, patients in whom oral or enteral nutrition support is being contemplated stand a good chance of benefitting from it. The benefit will not only be improved nutrition but - most importantly - in enhanced chance of survival.

At the same time, one of the authors' main points was that, after looking at about a decade's worth of published research, these trials were still by no means enough to reach a firm conclusion, particularly about the effect of nutrition support on clinical survival.

Hence, they recommended further and larger trials are needed.

The second study reminds us that the exact composition of supplemental feeding remains a subject of discovery, and that we still have much to learn. Also that focus on weight gain and other purely nutritional outcomes is not sufficient for deciding whether a particular formula is well balanced or not.

In looking at fat content, it has become increasingly clear over the last few years that a balance must be struck between different chain length fatty acids, on top of any other aspects of 'fat balancing' (such as omega-3: 6 ratios, per cent energy from fat etc).

The complexity of formulating the perfect product for each particular clinical situation sometimes seems endless, but it is clear that we need to keep trying, and that we need to include clinical outcome measures to judge our progress.

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