

Issue 88

In a nutshell

Malnutrition (such as protein-calorie malnutrition) is found in a large proportion of patients with chronic obstructive airways disease. It can result in impaired muscle, lung and immune function, and worse clinical outcome.

A number of studies have looked at whether supplementary nutrition can help. Results are not yet definitive.

Lung disease and nutrition

Arbor Clinical Nutrition Updates 2001 (April);88:1-2
ISSN 1446-5450

ARCHIVES

The full list of archived issues can be found at www.arborcom.com/archives/. Some issues of our translated language editions are also available in archive, for Spanish, Portuguese and French.

COPYRIGHT, disclaimer and terms of use

This copy from our archives is for your private use only, and is NOT to be forwarded to any other party. Your use of these Updates constitutes your agreement to our disclaimer and terms of use: see section at the end of this publication.

NUTRITION RESEARCH REVIEW

Study one: COPD and osteoporosis

There is a correlation between COPD, malnutrition and osteoporosis, according to Italian researchers.

Subjects: 104 patients with COPD.

Method: Comparison between the patients with and without osteoporosis (assessed by bone mineral density measurement). Various measures of nutritional and lung function were compared.

Results: There was a trend towards worse nutritional status (lower lean cell mass) and lower forced lung function in the COPD patients with osteoporosis. However, body mass index was the only independent predictor of osteoporosis. BMI < 22 had an odds ratio for osteoporosis of 4.18 (95% confidence interval: 1.19-14.71).

Reference: Incalzi RA et al. Correlates of osteoporosis in chronic obstructive pulmonary disease. *Respir Med* 2000;94: 1079-84

Study two : Acute effects of supplements

Some reassurance about the metabolic side effects of giving supplements to COPD patients is provided by the results of a Dutch study published last month.

Subjects: 14 COPD patients.

Method: Randomised, double-blind, crossover trial. The effect of caloric supplementation with two different energy levels (1046 kJ and 2092 kJ) was compared. Then in 11 patients two 1046kJ supplements were compared: carbohydrate-rich and fat-rich. Metabolic and ventilatory measurements were taken before and after supplementation.

Results: There were no immediate negative effects of the different energy level supplements. There was no significant difference in metabolism or exercise capacity after a fat-rich or carbohydrate-rich supplement.

There was a slight but significant increase in respiratory quotient after both 1046kJ and 2092-kJ supplements compared with placebo. However, subjects reported a significant increase in shortness of breath (pre-compared with post-supplementation meal) after the fat-rich supplement.

Reference: Vermeeren MA et al. Acute effects of different nutritional supplements on symptoms and functional capacity in patients with chronic obstructive pulmonary disease. *Am J Clin Nutr.* 2001 Feb;73(2):295-301

Comments

The fact that patients with COPD have poor nutritional status has been well known for many years. Protein-calorie malnutrition is commonly found, as well as loss of fat-free cell mass and weight. This affects up to three quarters of COPD patients.

The nutritional factors involved may include: protein-calorie malnutrition, Vitamin A, phosphorus, specific amino acids (such as leucine), essential fatty acids and antioxidants.

It is not entirely clear what causes the malnutrition in COPD. One reason is certainly an increased rate of resting metabolism, due to the excessive work being done by the respiratory muscles. This is probably more important than any decrease in food intake because of breathlessness and general ill health.

For the practising clinician, the important fact is that COPD malnutrition has clinical consequences. Many studies have linked it with worse muscle and lung function, impaired immunity and worse clinical outcome. The first study shows that there is also a correlation with osteoporosis.

The most important question, however, is whether it is possible to do something to correct the malnutrition. Is it safe and is it effective?

Is it safe? There has been concern that giving patients high carbohydrate supplements would adversely affect their carbon dioxide levels and impair lung function. For this reason, high fat supplements have been preferred to high carbohydrate. The second study we have reviewed is partly reassuring about this point, although the researchers did find an unexplained increase in dyspnoea in the high-fat group.

Is it effective? Sadly, there is no consistent evidence yet that it makes any difference to long term outcome.

A recent systematic review of all published randomised controlled trials on this topic located only nine trials of this type. Whilst there were small effects of supplementation on nutritional state, lung and exercise function in COPD patients, when the results when pooled and analysed they were not significant ¹.

COPD is a common cause of morbidity and mortality in all countries, both in the developed and the developing worlds. The interaction between COPD and nutrition is important. There is hope that supplementation can be helpful, but as yet the firm evidence is lacking.

References:

1. Ferreira IM et al. Nutritional supplementation in stable chronic obstructive pulmonary disease. Cochrane Database Syst Rev 2000;(3):CD000998

Disclaimer, copyright and terms of use

Your use of these Updates constitutes your agreement to our disclaimer and terms of use which can be found on our web site at: <http://arborcom.com/disclaim3.htm>. You can also obtain the disclaimer and terms of use by emailing us at: upD@arborcom.com.

© Copyright Arbor Communications PTL 1999. All rights reserved. This publication may NOT be forwarded onto others without our written permission.

If you want to receive the Clinical Nutrition Updates on an ongoing basis, please send us a request email to upD@arborcom.com. This is a FREE service to health professionals and students. Include details of your name, email address, which country you live in, institution you are associated with (if relevant) and professional background. The Updates are available in English, Spanish, Portuguese, Italian, French, Korean and Russian