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Titel:

Nutritional Depletion in Chronic Obstructive Pulmonary Disease (COPD): Effect on Morbidity, Mortality and Physical Capacity

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Abstract

The overall aim of this work was to examine the effects of depleted nutritional status on some aspects of Chronic Obstructive Pulmonary Disease (COPD).

Morbidity. In paper I, we found that energy intake was lower than the calculated energy demand for all patients. A low body mass index (BMI) at inclusion and weight loss, during the one year follow-up period were independent risk factors for having a new exacerbation ($p = 0.003$ and 0.006, respectively).

Mortality. Nineteen percent of the patients in paper II, where underweight (BMI<20). A significant positive correlation was found between BMI and FEV1, and this correlation remained significant after adjustment for age, sex and pack years ($p<0.0001$). Being underweight was related to increased overall mortality and respiratory mortality but not to mortality of other causes, 19% of the patients had died within 2 years. The lowest mortality was found among the overweight patients (BMI 25-30 kg/m).

Physical capacity and effect of training. In paper III we investigated baseline characteristics of patients that were starting physical training. We found that peak working capacity was positively related to BMI ($r=0.35$, $p=0.02$) and fat free mass index (FFMI) ($r=0.49$, $p=0.004$) and negatively related to S-Fibrinogen and serum C reactive protein (S-CRP). BMI and FFMI were significantly related to the 12 minutes walking distance when adjusted for body weight. Fifty to 76% of the variation in physical capacity was accounted for when age, gender, FEV1, FFMI and CRP were combined in a multiple regression model.

In Paper IV the median change in fat free mass (FFM), after 4 months of physical training was 0.5 kg. Old age, low FEV1 and high level of dyspnoea were independent negative predictors of FFM increase after the training period.

In conclusion nutritional status is an important determinant of morbidity, mortality and physical capacity in COPD. Low FEV1 and high level of dyspnea are negative predictors for increased FFM after physical training.

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