Comprehensive effects of supplemented essential amino acids in patients with severe COPD and sarcopenia

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**Aim.** Aim of the study was to investigate whether or not oral supplementation of essential amino acids (EAAs) may improve body composition, muscle metabolism, physical activity, cognitive function, and health status in a population of subjects with severe chronic obstructive pulmonary disease (COPD) and sarcopenia.

**Methods.** Thirty-two patients (25 males) (FEV\(_1\)/FVC <40% predicted), age 75±7 years, were randomised (n=16 in both groups) to receive 4 gr/bid EAAs or placebo according to a double-blind design. When entered the study (T\(_0\)), after four (T\(_4\)), and after twelve (T\(_12\)) weeks of treatments, body weight, fat free-mass (FFM), plasma lactate concentration (µmol/l), arterial PaCO\(_2\) and PaO\(_2\), physical activity (n° steps/day), cognitive function (Mini Mental State Examination; MMSE), health status (St.George’s Respiratory Questionnaire; SGRQ) were measured.

**Results.** EAAs supplemented, but not patients assuming placebo, progressively improved all baseline variables over-time. In particular, at T\(_12\) of EAAs supplementation, body weight (BW) increased by 6 Kg (p=0.002), FFM by 3.6 Kg (p=0.05), plasma lactate decreased from 1.6 µmol/l to 1.3 µmol/l (p=0.023), PaO\(_2\) increased by 4.6 mmHg (p=0.01), physical activity increased by 80% (p=0.01). Moreover, the score for cognitive dysfunction improved from 19.1 scores to 20.8 (p=0.011), while the SGRQ score also improved from 72.3 to 69.6 even though this trend did not reach the statistical significance.

**Conclusions.** A three-month EAAs supplementation may have comprehensive effects on nutritional status; muscle energy metabolism; blood oxygen tension, physical autonomy; cognitive function, and perception of health status in patients with severe COPD and secondary sarcopenia. Monaldi Arch Chest Dis 2010; 73: 1, 25-33.