Category :**Nutritional support**

A29 - ***Does the amino acid pattern in medical nutrition therapy affect muscle mass loss in adult ICU patients? A secondary analysis of a randomized controlled trial***

E Dresen [1] ; L Siepmann [2] ; C Weißbrich [3] ; L Weinhold [4] ; C Putensen [3] ; P Stehle [2]

[1]University Hospital Wuerzburg, Department of Anesthesiology and Intensive Care Medicine, Wuerzburg, Germany, [2]University of Bonn, Department of Nutrition and Food Sciences, Nutritional Physiology, Bonn, Germany, [3]University Hospital of Bonn, Department of Anesthesiology and Intensive Care Medicine, Bonn, Germany, [4]University Hospital of Bonn, Institute of Medical Biometry, Informatics and Epidemiology, Bonn, Germany

Introduction:

In long-term immobilized intensive care unit (ICU) patients, muscle mass loss is a crucial determinant of patient outcome. In this context, both the quantity and quality (amino acid pattern) of protein nutrition may play a key role in supporting muscle mass preservation. Our analysis aimed to evaluate potential associations of enteral/parenteral amino acid intake with muscle mass loss during the ICU stay.

Methods:

Data were collected from a recent randomized controlled trial conducted in ICU patients investigating the effect of protein quantity (intervention [IG]: 1.8 g/kg body weight [BW]; standard [SG]: 1.2 g/kg BW/d) on the muscle mass loss over 28 days. Intake of individual amino acids (AA) and sum scores of indispensable, conditionally indispensable, and dispensable AA were calculated (group specific [n=21 each] and in total [n=42]). Inter-group differences were analyzed by t-tests; linear regression models tested the effects of individual AA and sum scores on the extent of muscle loss (significance level adjusted according to the Bonferroni procedure [α=0.002]).

Results:

Intake of indispensable AA covered actual recommendations (IG: 51.1 g/d, SG: 38.5 g/d; 41% of total AA supply). Conditionally indispensable AA (glutamine, tyrosine, cysteine, histidine, and arginine) accounted for 17% (IG: 21.4 g/d) and 18% (SG: 16.6 g/d) of total AA; glutamine supply (only given enterally) reached 0.06-0.07 g/kg BW/d. The intake of dispensable AA showed broad individual variations. During the study period, muscle mass decreased in both groups (IG: 30.4%; SG: 51.8%), but there was no statistically significant association observed with quantitative intake of single AA and sum scores (all $P>0.05$).

Conclusion:

Our working hypothesis could not be supported by the data presented. Possible explanations are the limited variations in AA intake due to the routine use of similarly composed nutrition products in the study center and the low number of patients included.