Weakness

Study weakness

(decreased ability for the muscle to generate force)

see Paresis.

Transient Weakness

Weakness or asthenia is a symptom of a number of different conditions.

The causes are many and can be divided into conditions that have true or perceived muscle weakness. True muscle weakness is a primary symptom of a variety of skeletal muscle diseases, including muscular dystrophy and inflammatory myopathy. It occurs in neuromuscular junction disorders, such as myasthenia gravis.

Intensive care unit-acquired weakness (ICU-AW) is often observed in critically ill patients with prolonged intensive care unit (ICU) stay. We hypothesized that evolving metabolic abnormalities during prolonged ICU stay are reflected by changing nutrient patterns in blood, urine and skeletal muscle, and that these patterns differ in patients with/without ICU-AW and between patients with/without sepsis.

METHODS: In a prospective single-center observational trial, we aim to recruit 100 critically ill patients (ICU length of stay ≥ 5 days) with severe sepsis/septic shock (“sepsis group”, n = 50) or severe head trauma/intracerebral hemorrhage (“CNS group”, n = 50). Patients will be sub-grouped for presence or absence of ICU-AW as determined by the Medical Research Council sum score. Blood and urine samples will be collected and subjected to comprehensive nutrient analysis at different time points by targeted quantitative mass spectrometric methods. In addition, changes in muscular tissue (biopsy, when available), muscular architecture (ultrasound), electrophysiology, body composition analyses (bioimpedance, cerebral magnetic resonance imaging), along with clinical status will be assessed. Patients will be followed-up for 180 and 360 days including assessment of quality of life.

DISCUSSION: Key objective of this trial is to assess changes in nutrient pattern in blood and urine over time in critically ill patients with/without ICU-AW by using quantitative nutrient analysis techniques. Peer-reviewed published NAChO data will allow for a better understanding of metabolic changes in critically ill patients on standard liquid enteral nutrition and will likely open up new avenues for future therapeutic and nutritional interventions [1)].

1)

Schefold JC, Messmer AS, Wenger S, Müller L, von Haehling S, Doehner W, McPhee JS, Fux M, Rösler KM, Scheidegger O, Olariu R, Z'Graggen W, Rezzi S, Grathwohl D, Konz T, Takala J, Cuenoud B, Jakob SM. Nutrient pattern analysis in critically ill patients using Omics technology (NAChO) - Study protocol for a prospective observational study. Medicine (Baltimore). 2019 Jan;98(1):e13937. doi: 10.1097/MD.0000000000013937. PubMed PMID: 30608424.