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Nutritional Assessment in Patients Affected by Mitochondrial Cytopathy (NAMITO Study)

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Introduction: Patients suffering from mitochondrial cytopathy are at high risk for malnutrition. They often suffer from gastrointestinal symptoms (e.g. dysphagia, intestinal dysmotility, gastroparesis), which considerably influence nutritional intake and therefore deteriorate nutritional state. Literature in this regard is very sparse.
Aims: Aim of the present study was to close this gap, to evaluate a simple screening tool for protein energy malnutrition (PEM) and conduct an extended nutritional assessment to explore a potential presence of PEM in this patients' population compared to matched controls.
Methods: Prospective observational cohort study comparing outpatients with mitochondrial cytopathies to healthy controls. Nutritional screening (NRS-2002) and full nutritional assessment were conducted, including quantitative and qualitative analysis of dietary habits (7-days food recall protocol), body composition measurements (Bioimpedance analysis and anthropometrics), rest energy expenditure (indirect calorimetry) and quality of life (QoL) questionnaire (SF36v2). Blood and 24-h urine analyses were completed in the patients' group. The study was approved by the Ethics Committee (KEK-BE 242/2014) and registered on ClinicalTrials.gov (NCT02375438)
Results: Twenty-six patients were included, 11 in the patients' group (7 men, 4 women) and 15 in the control group (8 men, 7 women). No patient was screened at high risk for malnutrition according to the NRS 2002. Nutritional assessment showed, that patients had inadequate energy intake and significantly lower protein intake. Nitrogen balance and creatinine height index showed pathologic values. Body composition and function were altered as well as QoL score.
Conclusions: According to the ESPEN guidelines, all patients were malnourished. Thus, the NRS 2002 appears to be too less sensitive for outclinic chronic ill patients. There is a rational to increase protein intake and to adapt energy supply to improve disease-related symptoms and QoL. Further studies should investigate the potential positive influence of dietary management on the course of the disease.

Keywords: mitochondrial cytopathy, malnutrition, nutritional screening, nutritional assessment.