

Fatuma MEYER¹, Karen BANNERT², Mats WIESE³, Susanne ESAU¹, Lea F. SAUTTER^{1,2}, Luise EHLERS²,

Ali A. AGHDASSI³, Robert JASTER², Cornelia C. METGES⁴, Leif A. GARBE⁵, Markus M. LERCH³, Georg LAMPRECHT², Luzia VALENTINI¹

¹Neubrandenburg Institute for Evidence-Based Dietetics (NIED), Department of Agriculture and Food Sciences, University of Applied Sciences Neubrandenburg, Germany,

²Department of Medicine II, Division of Gastroenterology and Endocrinology, University Medicine Rostock, Germany, ³Department of Medicine A, University Medicine Greifswald, Germany,

⁴Institute of Nutritional Physiology 'Oskar Kellner', Leibniz Institute for Farm Animal Biology (FBN), Dummerstorf, Germany, ⁵Department of Agriculture and Food Sciences, University of Applied Sciences Neubrandenburg, Germany



Hochschule Neubrandenburg
University of Applied Sciences



LEIBNIZ INSTITUTE
FOR FARM ANIMAL BIOLOGY

Rationale

Fatigue symptoms are common in patients (PTS) with liver cirrhosis (LC) and chronic pancreatitis (CP) and have a detrimental impact on quality of life. This study aims to investigate the prevalence of fatigue in LC and CP as compared to healthy controls (Con) and identify correlating factors.

Methods

In a multicentre cross-sectional study done in Mecklenburg Vorpommern, Germany, and funded by the European Social Fund (Project EnErGie, ESF/14-BM-A55, -0007, -0008, -0009, -00010 & -00011/18) subjects were recruited from 02/10/2018 to 13/01/2020. Included were 35 PTS: LC (n=18, Child-Pugh 1A/9B/8C), CP (n=17) and 35 matched Con (Table 1). Blood analysis and several instruments were used: fatigue (FSS), malnutrition (GLIM), sarcopenia (EWG SOP), body composition (mBCA 514/15 (seca, Germany), grip strength (Jamar dynamometer), waist/hip ratio (WHR) and physical activity (IPAQ).

Results

Overall, 37% of PTS (n=13) were fatigued (FSS PTS^{Fatigue+} 6.0 ± 0.7 vs PTS^{Fatigue-} 3.4 ± 0.9 P, p<0.001), whereas no Con showed fatigue symptoms (FSS= 2.7 ± 1.1). 54% of all PTS (n=19; 8 LC/11 CP) were malnourished with 46% accounting for PTS^{Fatigue+} (n=6, n.s.). Sarcopenia was present in 14% of all PTS (n=5), with 60% of sarcopenic PTS being fatigued (n=3).



Funded by:



EUROPÄISCHE UNION
Europäischer Sozialfonds



Europäische Fonds EFRE, ESF und ELER
in Mecklenburg-Vorpommern 2014-2020

Table 1. Subject characteristics

	Patients (n=35)	Control (n=35)	P Value
Age (years)	56,8 ± 10,5 (34-81)	57,3 ± 10,2 (32-81)	0,828
BMI (kg/m ²)	26,87 ± 4,9 (13,7-36,8)	25,99 ± 3,9 (18,9-39,6)	0,385

Table 2. Anthropometry and Muscle strength PTS^{Fatigue+} vs. PTS^{Fatigue-}

	PTS ^{Fatigue+}	PTS ^{Fatigue-}	P Value
Waist. cirm (cm)	101 ± 9,7	96 ± 14,1	0,063
WHR	1,03 ± 0,11	0,96 ± 0,09	0,010
Grip strength	33,8 ± 14,4	39,3 ± 9,1	0,090

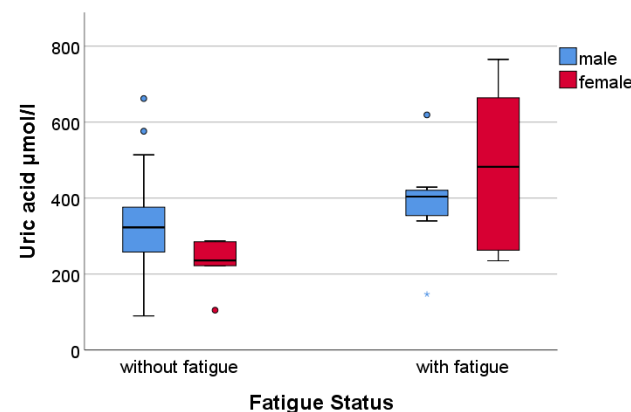


Figure 1. Uric acid levels PTS^{Fatigue-} vs. PTS^{Fatigue+}

Differences in anthropometry and muscle strength are shown in Table 2. Serum inflammation parameters (CRP, IL-6) and electrolytes (Na, K, Ca, Mg, PO₄) did not differ between PTS^{Fatigue+} and PTS^{Fatigue-}. However, PTS^{Fatigue+} had higher serum uric acids (432 ± 177 vs 306 ± 143 µmol/l, p=0.028) and creatinine levels (113 ± 61 vs 68 ± 24 µmol/l, p=0.004) (Figure 1 and 2) as compared to PTS^{Fatigue-} and also tended to show lower physical activity (1496 ± 2145 vs 3616 ± 4500, total METs, p=0.096).

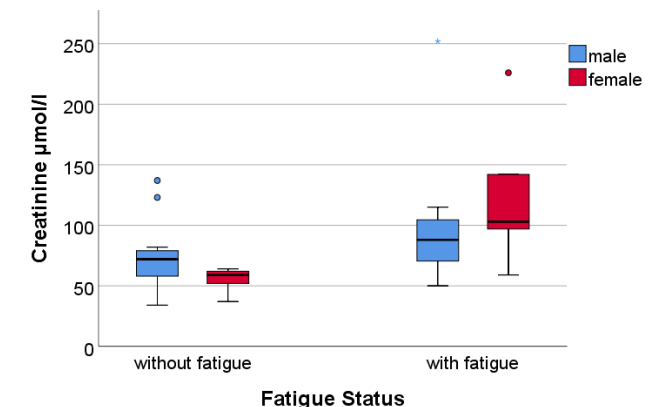


Figure 2. Creatinine levels PTS^{Fatigue-} vs. PTS^{Fatigue+}

Conclusion

Contrary to our expectations, there was no evident association between the occurrence of fatigue neither with malnutrition, sarcopenia nor inflammation. Nonetheless, patients with and without fatigue differed significantly in relation to other parameters. These results provide initial insight into possible associations, which will be further investigated with greater numbers of patients within the EnErGie project.