Fatigue in Patients with Hypothalamic Syndrome A Cross-Sectional Analysis of the German Childhood-Onset Craniopharyngioma Cohort

Julia Beckhaus[1], Jale Özyurt[2,3], Aylin Mehren[2,4], Carsten Friedrich[1], Hermann L. Müller[1]

[1]Dep. of Pediatrics and Pediatric Hematology/Oncology, University Children's Hospital, Klinikum Oldenburg AöR, Oldenburg, Germany; [2]Department of Psychology, School of Medicine and Health Sciences, Carl von Ossietzky Universität Oldenburg, Oldenburg, Germany; [3]Research Center Neurosensory Science, Carl von Ossietzky Universität, Oldenburg, Germany; [4]Department of Psychiatry und Psychotherapy, University Hospital Bonn, Bonn, Germany.

Introduction

Patients with suprasellar tumors are at risk for hypothalamic syndrome (HS), including fatigue and excessive daytime sleepiness. Hypothalamic syndrome includes symptoms of eating disorders, behavioral disorders, sleep disorders, temperature regulation disorders, and endocrine dysfunction. The aim of this cross-sectional study was to determine the presence and severity of fatigue in patients with and without HS.

Patients and methods

Patients diagnosed with CP or pilocytic astrocytoma (n=1) were recruited from the KRANIOPHARYNGEOM 2000/2007/Registry 2019 studies and included in this analysis. Eligibility criteria were regular participation in outpatient after-care, one completed Multidimensional Fatigue Inventory-20 (MFI-20) questionnaire and complete medical records on criteria for hypothalamic syndrome. With univariable and multivariable linear regression, the relation of hypothalamic syndrome and levels of fatigue symptoms (MFI-20 sum score) were assessed.

Results

Data on 41 patients, with a median age of 20 years, was available for this analysis of which 25 (61%) patients presented with hypothalamic syndrome. After adjustment for age and sex, patients with hypothalamic syndrome reported higher scores in the physical (β= 3.61 [95% CI: 1.38–5.85]) and sum MFI-20 (β= 12.02 [95% CI: 2.93–21.10]) domain than patients without hypothalamic syndrome. Abnormal self-reported daytime sleepiness was reported in 7 out of 25 (28%) patients with hypothalamic syndrome. Regardless of their level of daytime sleepiness, reported fatigue scores were high.

Table 1: Characteristics of the patients

Patients' characteristic	Overall (n=41)	HS (n=25)	No HS (n=16)
Female	18 (44)	9 (36)	9 (56)
Age at diagnosis	10.2 [1.65, 17.1]	10.3 [1.65, 17.1]	10.1 [3.44, 14.4]
Age at study	20.6 [7.07, 45.3]	18.9 [7.07, 39.7]	25.3 [12.9, 45.3]
BMI SDS at diagnosis	+0.94 [-2.51, +9.90]	+1.22 [-2.51, +9.90]	-0.50 [-2.07, +3.39]
Degree of surgical resection Complete resection Incomplete resection	 29 (71) 11 (27)	 20 (69) 8 (28)	 13 (81) 3 (19)
Irradiation	23 (56)	11 (44)	12 (75)
Hypocortisolism	37 (90)	24 (96)	13 (81)
Diabetes insipidus centralis	31 (76)	20 (80)	11 (69)
Epworth Sleepiness Scale Mean (SD)	7.24 (4.12)	8.52 (3.91)	5.25 (3.71)

Table 2: Results of univariable and multivariable linear regression on MFI-20 sum score

Expo-sure	Unadj. Est.	95 % CI		p value	Adj. Est. for sex and age	95 % CI		p value
HS	8.13	-1.45	17.72	0.094	12.26	3.05	21.46	0.010

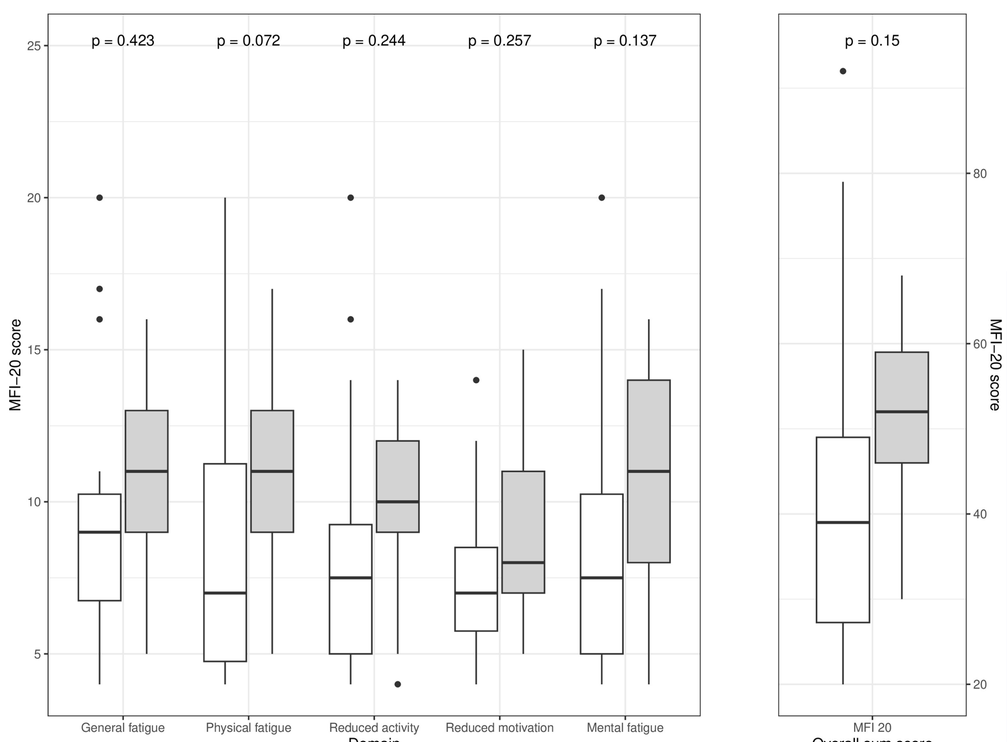

FIGURE 1
MFI scores in different domains (left) and overall sum score (right) in patients without (n=16; white boxes) and with hypothalamic syndrome (HS) (n=25; grey boxes)

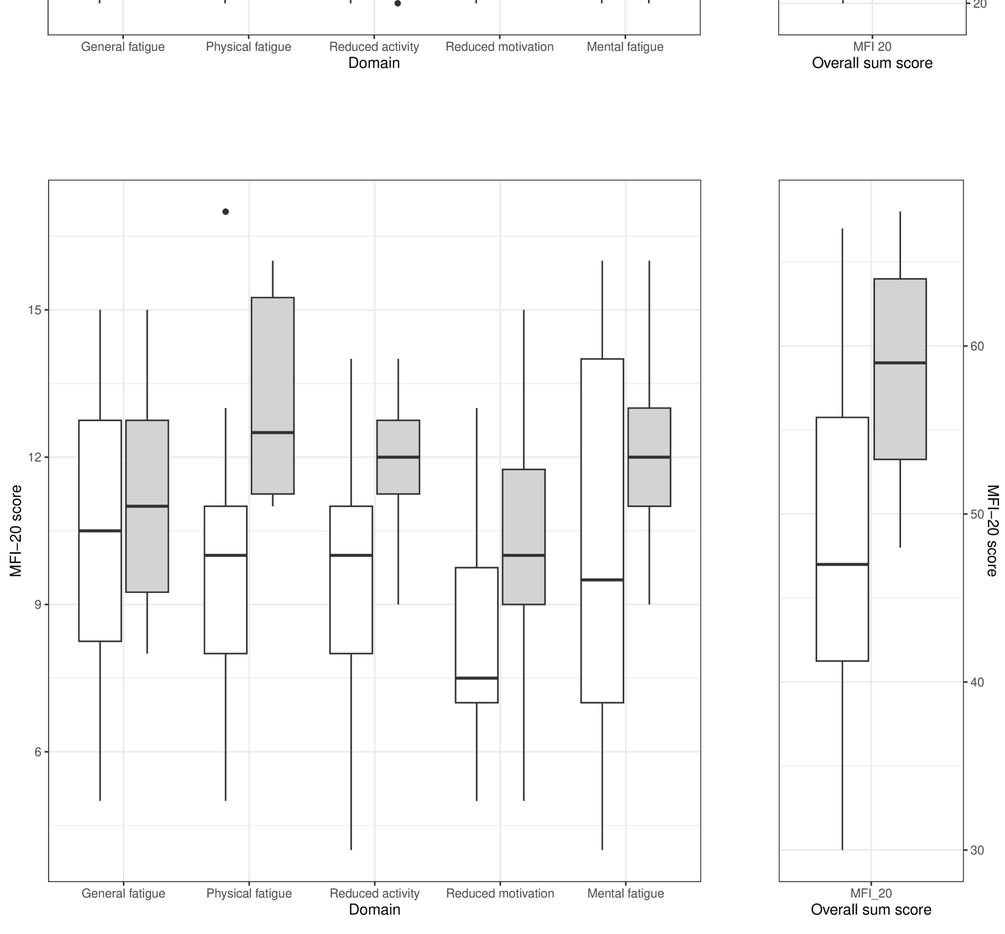

FIGURE 2
MFI score in different domains and overall sum score in a subgroup of 24 patients with HS and no daytime sleepiness (ESS 0-10) (n=18; white boxes) and mild (ESS 11-17) daytime sleepiness (n=6; grey boxes)

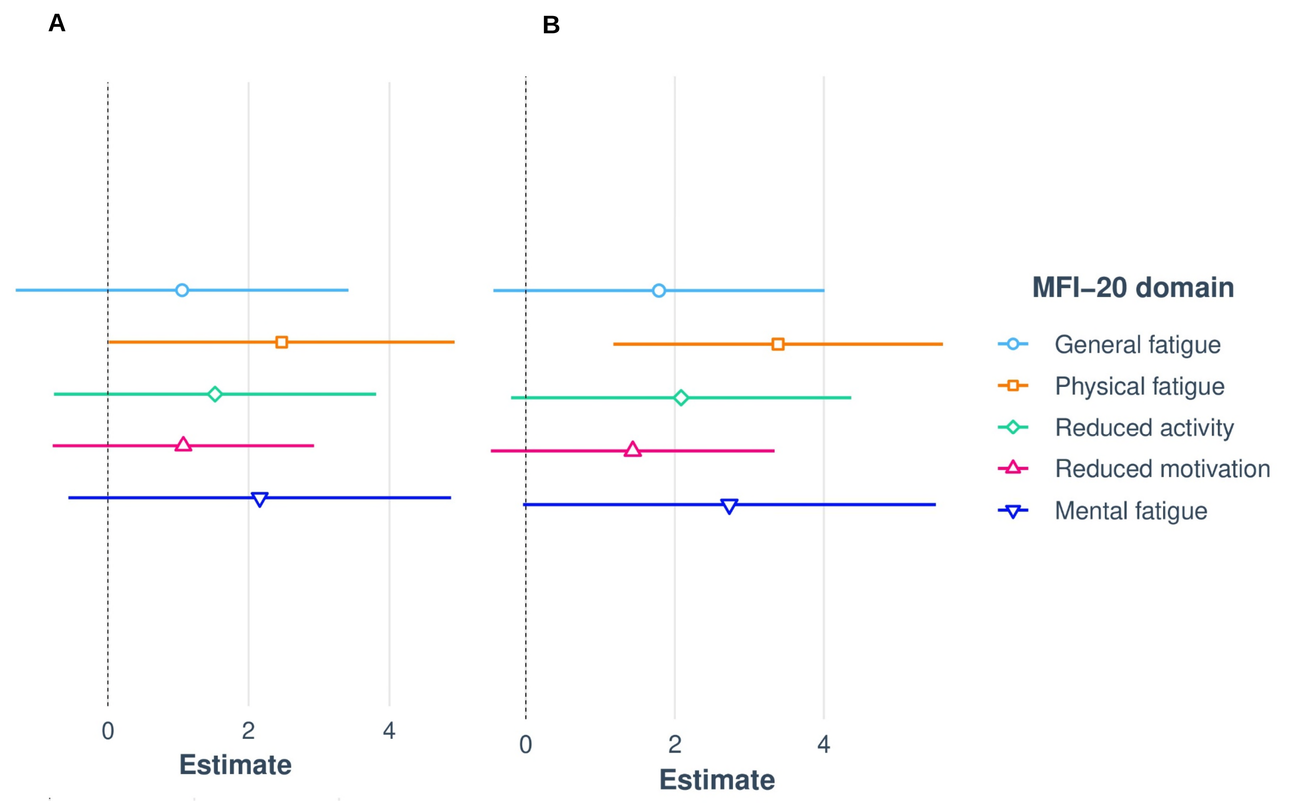

FIGURE 3
Results of univariable (A) and multivariable (B) linear regression of hypothalamic syndrome on different domain scores of MFI-20. Adjusted estimates (B) are adjusted for sex and age at study.

Conclusions

Fatigue symptoms are present in patients with CP. However, patients with hypothalamic syndrome are more affected in mental, physical and overall fatigue. It is crucial in clinical practice, to distinguish between sleep disorders and fatigue and to target patients with hypothalamic syndrome.

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