Factors associated with the development of post-stroke fatigue, anxiety, depression and sleep disorders in periods of acute stroke and six months post-stroke

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Background and aims: Neuropsychological and mood disorders including fatigue, anxiety, depression and sleep disturbance are frequent symptoms encountered in people with stroke (pwS). Despite their affect on recovery and outcome, they often stay overlooked and not properly assessed. The aim of this study is to evaluate the association between the type of stroke, etiology, neuroradiological characteristics, stroke localization and patient comorbidity with the prevalence of fatigue, anxiety, depression and sleep disorders during the acute stroke period (at the time of hospital discharge) and at six month follow-up period and also to make comparison with results from age-matched healthy controls (HC).

Methods: Patients aged 18 years and older, who have suffered an acute stroke are included in the study.

Exclusion criteria are: dysphasia, severe cognitive impairment (MMSE<20), subarachnoid hemorrhage (SAH), transient ischemic attack (TIA), a prior history of anxiety and depression, psychosis, terminal illness and thyroid disorders. All patients will have a CT or MRI. In order to assess stroke severity, the National Institute of Health Stroke Scale (NIHSS) is used upon admission and a Modified Rankin Scale(mRS) upon hospital discharge. Each enrolled participant is being assessed using the following rating scales: Fatigue Severitiy Scale-9 (FSS-9),Modified Fatigue Severity Scale (MFIS), Montgomery and Asberg Depression Rating Scale(MADRS),Hamilton Depression Scale HAM-D), Hospital Anxiety and Depression Scale (HADS),Beck Depression Inventory(BDI) and the Epworth Sleepiness Scale(ESS). Rating scales are also obtained from age-matched HC.
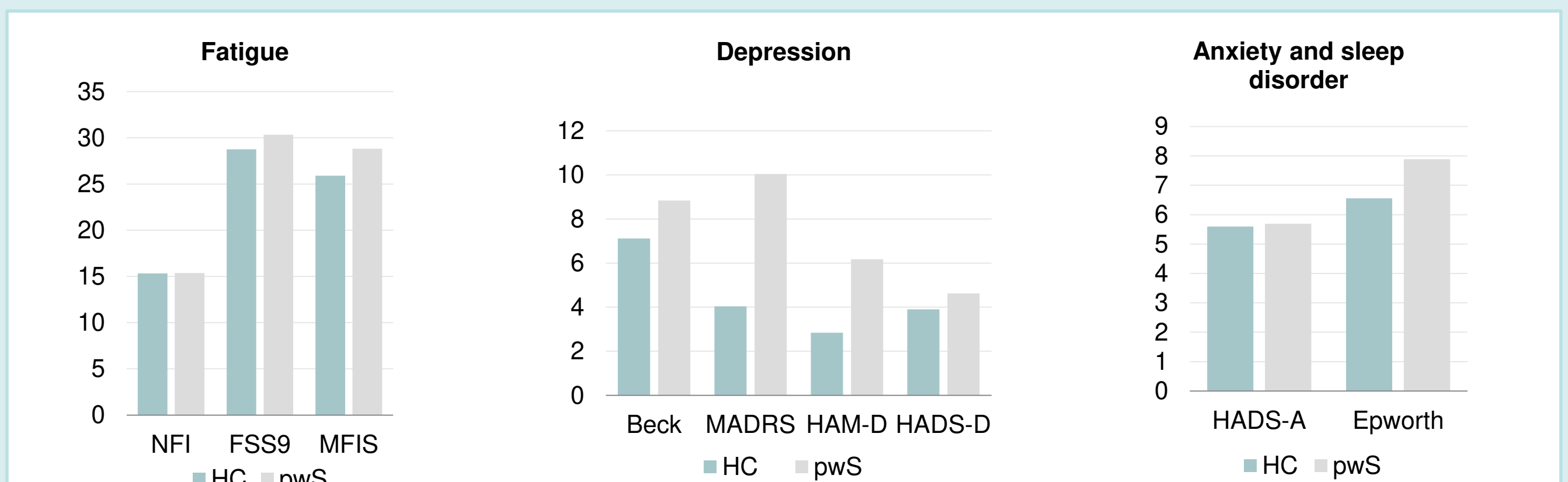
Results: Twenty-nine pwS (mean age 63,03 ± 12.35, 9 female) and 25 HC (mean age 60,83 ± 10.49, 14 female), were enrolled. For the both groups there was statistically significant correlation between all used fatigue scales (Spearman correlation coefficient, all p<0,05) except for FSS9 and NFI.

Depression scales also showed statistically significant correlation in both groups (all p<0,03) , except for HAM-D and Beck in HC group.

Nine pwS (32.14%) and 5 (17.86%) HC were classified as fatigued, 15 pwS (60%) and 5 (25%) HC were classified as depressed, 8 pwS (30.77%) and 6 (30%) HC were classified as anxious,10 pwS (35.71%) and 6 (25%) HC had sleep disorder according to scales cut-off values (NFI>18 or MADRS>6 or HADS-A >7 or Epworth >9). Charts are showing relationship between average scale values for both pwS and HC group.

Conclusion: Different fatigue and depression scales showed similar trend of correlation in both pwS and HC. In the group of pwS we have found higher prevalence of depression in comparison with HC. Regarding fatigue, anxiety and sleep disorder there was no statistically significant difference between pwS and HC but a number of enrolled patients is still to small. Study is still in progress.

Baseline characteristic	N = 29
Gender, N (%)	
Female	9 (31.03%)
Male	20 (68.97%)
Age, mean (SD)	63.03 (±12.35)
NIHSS on admission, mean	4.48
mRS, on discharge, mean	1.86
Stroke type, N (%)	
Ischemic	26 (89.66%)
Hemorrhagic	3 (10.34%)
tPA intravenous administration	5 (19.23%)
TOAST classification, N (%)	
LAA	5 (19.23%)
SVO	12 (46.15%)
Cardioembolism	2 (7.69%)
Other determined etiology	1 (3.84%)
Undetermined etiology	6 (23.09%)
Stroke localization, N (%)	
Supratentorial	19 (65.52%)
Infratentorial	6 (20.69%)
Undetermined	4 (13.79%)

Fatigue (NFI, FSS9, MFIS) — HC and pwS

Depression (Beck, MADRS, HAM-D, HADS-D) — HC and pwS

Anxiety and sleep disorder (HADS-A, Epworth) — HC and pwS

1.Mutai H, Furukawa T,Houri A, Suzuki A, Hanihara T. Factors associated with multidimensional aspect of post-stroke fatigue in acute stroke period. Asian Journal of Psychiatry 26 (2017) 1-5
2.Sagen U, Gunnar Vik T, Moum T, Morland T, Finset A, Dammen T. Screening for anxiety and depression after stroke: Comparison of the Hospital Anxiety and Depression Scale and the Montgomery and Asberg Depression Rating Scale. Journal of Psychosomatic Research 67 (2009) 325-332
3.Naess H, Lunde L, Brogger J, Waje-Andreassen U. Fatigue among stroke patients on long term follow-up. The Bergen Stroke Study. Journal of Neurological Sciences 312 (2012) 138-141