Polysomnographic findings and clinical correlates in Huntington disease. A cross-sectional cohort study.

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Studies of sleep disorders in HD

Emser et al. 1988	*PSG*	*Decreased sleep density*
Wiegand et al. 1991	*PSG*	*Disturbed sleep, increased spindles*
Taylor and Bramble 1997	*Questionnaires*	*Sleep problems in 87.8%*
Hurelbrink et al. 2004	*Actigraphy*	*Increased motor activity in sleep*
Arnulf et al. 2008	*V-PSG*	*Insomnia, PLM, RBD*
Videnovic et al. 2009	*Questionnaires*	*Disturbed sleep, somnolence*
Cuturic et al. 2009	*PSG*	*Prolonged sleep latency, no SDB*
Goodman et al. 2010	*PSG, Actigraphy*	*Disordered sleep (100%)*
Neutel et al. 2015	*V-PSG*	*Nocturnal 'agitation'*
Lazar et al. 2015	*PSG*	*Fragmented sleep (pre-manifest HD)*

Study design: single center, cross-sectional, cohort, controlled study

Aims of the study

- ✓ Evaluate the presence of subjective and objective sleep disorders
- ✓ Evaluate their impact on motor, cognitive and psychological performances
- ✓ Evaluate their impact on quality of life
- ✓ Propose therapeutical stategies

Methods

- ➢ Clinical evaluation (UHDMRS, CAG repeat, duration of disease)
- ➢ Subjective sleep evaluation (PSQI, ESS, HD-Q, Bologna-Q, Berlin, RBD-Q, RLS)
- ➢ Objective sleep evaluation (polysomnography)
  - Sleep structure
  - Sleep-related motor pattern
  - Sleep-related respiratory pattern
  - Sleep EEG

Patients and Controls

30 HD patients, 30 healthy controls matched for age and sex
Patients enrolled in the Movement Disorder Center, UCSC, Rome, Italy
Controls enrolled in the Sleep Disorder Center, UCSC, Rome, Italy
Enrollment period: Jan-to-June 2014

		HD patients			Controls		
		Mean	SD	Total	Mean	SD	Total
Clinic and demographic data	Age	57,3	12,2		56,5	11,8	
	Gender			14M, 16F			14M, 16F
	Neck	35,9	3,7		36,3	3,6	
	BMI	21,9	4,0		26,2	8,5	
	Disease duration	9,4	4,4				
	UHDMRS	55,5	23,4				
	CAG repeats	44,3	4,0				

Results - Subjective sleep evaluation

Sleep quality
PSQI > 5 (poor sleep quality): 18 patients (60%)
HD-Q > 3 (poor sleep quality): 10 patients (33%)
Somnolence:
ESS > 9 (daytime sleepiness): 6 patients (20%)
Bologna Q (high risk): 7 patients (23%)
SDB (Berlin Q, high risk): 8 patients (27%)
RLS (IRLSS questionnaire): 2 patiens (6%)
RBD (RBD questionnaire): 2 patients (6%)

Results - Objective sleep evaluation (polysomnography)

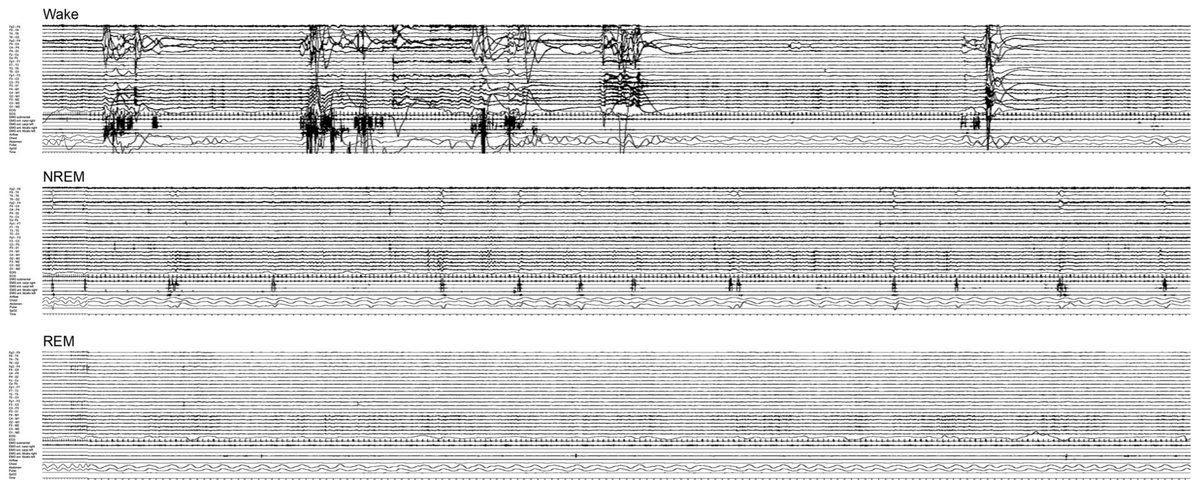
SDB: Only 2 patients (6%) presented PSG evidence of OSA, mild in 1 case (same prevalence as in general elderly population)
RBD: No patient presented episodes of RBD, neither evidence of REM sleep Without Atonia (including the 2 patients with positive RBD-Q scores)
Motor activity:
HD patients presented increased motor activity during wake and sleep.
PLM were observed in all patients, both during pre-sleep wake and sleep.
Both upper and lower limbs PLM persisted during all sleep stages, but were consistently reduced during REM.

			Huntington		Controls		Mann-Whitney	
			Mean	DS	Mean	DS	U-test	p
Respiratory results	Central	Apneas	0,5	1,9	0,7	1,3	621,0	0,004
		Hypopneas	0,3	0,7	0,1	0,3	414,0	0,494
	Mixed	Apneas	0,0	0,0	0,1	0,3	540,5	0,024
		Hypopneas	0,0	0,0	0,0	0,0	465,0	0,317
	Obstructive	Apneas	0,5	1,3	1,0	1,6	605,0	0,012
		Hypopneas	1,1	4,7	1,3	1,7	622,5	0,006
	Oxygen Desaturation Index	Total sleep	3,3	3,9	3,3	2,0	531,0	0,231
		NREM	3,0	3,6	2,7	1,8	535,5	0,206
		REM	5,8	9,6	5,3	3,3	574,5	0,063

			Huntington		Controls		Mann-Whitney	
			Mean	DS	Mean	DS	U-test	p
PLM	Wake	Lower limbs	46,0	135,0	0,5	1,0	46,5	<0,001
	Sleep		17,6	19,5	0,5	1,4	0,0	<0,001
	NREM		17,9	19,2	0,2	0,3	2,0	<0,001
	REM		15,1	23,8	0,9	2,2	284,0	0,010
	Wake	Upper limbs	68,1	188,6				
	Sleep		20,9	27,6				
	NREM		21,5	27,6				
	REM		15,7	26,7				

Conclusions

Sleep in HD is characterized by:
Poor sleep quality (more objective than subjective)
Sleep fragmentation
No evidence of EDS
No evidence of SDB
No evidence of RBD
No evidence of RLS
Increased motor activity, prevalently in NREM, with increased PLMS



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