뇌신경재활

게시일시 및 장소 : 10 월 18 일(금) 13:15-18:00 Room G(3F)

질의응답 일시 및 장소 : 10 월 18 일(금) 15:45-16:30 Room G(3F)

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Objective and subjective sleep problems and quality of life stroke inpatients

Young-Hwan Yoo [1], Ju-Young Im[1], Chang-Beom Kim[1], Hyun-Sung Lee[1], Won-Hyoung Kim[2], Han-Young Jung[1], Kyung-Lim Joa[1*†]

Inha University Hospital, Department of Rehabilitation Medicine[1], Inha University Hospital, Department of Psychiatry[2]

Objective

The principal objectives of this study were to investigate relationships between objective sleep parameters that is, sleep onset latency, wake after sleep onset, number of awakenings, sleep efficiency, and sleep duration, and the quality of life after mild to moderate stroke.

Methods

The subjects were 112 first-time mild to moderate stroke patients admitted to a rehabilitation unit. At about 20 days after stroke, physical functions, depression, anxiety, quality of life, subjective insomnia, quality of sleep, and fatigue were assessed. Objective sleep parameters were also assessed using wrist worn actiwatch. Data from Actiwatches were analyzed over 30-second epochs using Actiwatch 8.0 software (Philips Respironics, Oregon, United States). Actiwatch measures total sleep duration, sleep onset latency, sleep efficiency, wake after sleep onset, and number of awakenings. Subjective insomnia was evaluated using the insomnia severity index. Quality of sleep was evaluated using the Pittsburgh Sleep Quality Index, which is a self-report questionnaire consisting of 19 items that include the seven components sleep duration, sleep onset, subjective sleep quality, sleep duration, daily sleep efficiency, sleep-related problems, sleep-associated drug use, and daytime dysfunctions during the previous month.

Results

Patients with insomnia had greater sleep onset latency ($p=0.001$), wake after sleep onset ($p=0.005$), awoke more frequently ($p=0.013$), and slept less efficiency ($p<0.001$) than patients without insomnia, but total sleep durations were similar. In all participants, lower overall domain of quality of life was significantly associated with sleep onset latency ($p=0.009$), and total insomnia severity index ($p<0.001$), total Epworth Sleepiness Scale ($p<0.001$), the National Institute's Health Stroke Scale ($p=0.004$), Modified Barthel Index ($p=0.034$), and Screening Tests for Aphasia and Neurologic-Communication Disorders ($p=0.044$) scores.

Conclusion

Objective sleep parameters (sleep onset latency and sleep efficiency) were found to be associated with quality of life during the early stage of rehabilitation in mild to moderate stroke patients.

TABLE 1. Differences between Demographic and Clinical Variables, Physical Function, Depression, and Anxiety in Stroke Patients with or without Subjective Insomnia

	Without subjective insomnia Mean/N (SD/%)	With Subjective Insomnia Mean/N (SD/%)	t/Chi-square	p
Demographic and clinical variables				
Age	66.11 (12.8)	66.37 (15.7)	-0.087	0.931
Sex				
Male	36 (51.4)	25 (60.0)	0.635	0.426
Female	34 (48.6)	17 (40.0)		
Type of stroke				
Infarction	59 (85.5)	37 (86.0)	0.001	0.969
Hemorrhage	10 (14.5)	6 (14.0)		
Physical function				
K-NIHSS	4.2 (3.6)	5.3 (3.8)	-1.377	0.172
K-BBS	15.1 (14.3)	13.7 (14.7)	0.441	0.660
K-MBI	25.0 (18.0)	25.6 (21.2)	-0.162	0.872
K-MMSE	21.6 (5.2)	20.7 (6.0)	0.738	0.462
K-FAB	12.2 (4.4)	11.5 (4.6)	0.716	0.476
K-STAND	26.8 (5.3)	27.0 (5.3)	-0.216	0.830
PHQ-9	2.7 (4.3)	5.4 (4.6)	-2.873	0.005
GAD-7	0.6 (1.6)	1.4 (1.9)	-2.806	0.040
FSS	23.6 (10.4)	30.5 (9.2)	-3.296	0.001

K-NIHSS; Korean version of National Institute Health Stroke Scale, K-BBS; Korean version of the Berg Balance Scale, K-MBI; Korean version of the Modified Barthel Index, K-MMSE; Korean version of the Mini Mental State Examination, K-FAB; Korean version of the Frontal Assessment Battery, K-STAND; Korean version of Screening Tests for Aphasia and Neurologic-Communication Disorders

TABLE 2. Difference between Sleep Parameter and Quality of Life in Stroke Patients with or without Subjective Insomnia

	Without Subjective insomnia Mean (SD)	With Subjective Insomnia Mean/N (SD)	t	p
Objective sleep parameters				
Total sleep time	470.3 (99.1)	467.5 (168.1)	0.091	0.928
Sleep onset latency	34.1 (30.5)	59.3 (43.2)	-3.345	0.001
Sleep efficiency	77.6 (7.8)	67.8 (11.9)	4.362	<0.001
Wake after sleep onset	79.4 (39.0)	110.1 (55.6)	-2.895	0.005
Number of awakenings	48.6 (20.2)	64.2 (32.6)	-2.571	0.013
Subjective sleep parameters				
Insomnia severity index	5.8 (4.3)	18.5 (2.4)	-18.823	<0.001
Pittsburgh Sleep Quality index	10.1 (2.5)	12.9 (2.8)	-5.204	<0.001
Epworth sleepiness scale	2.4 (2.8)	4.9 (5.2)	-2.600	0.013
World Health Organization Quality of Life assessment instrument abbreviated version				
Overall domain	47.8 (11.4)	33.0 (9.5)	6.393	<0.001
Physical health domain	30.6 (15.2)	14.9 (9.0)	6.313	<0.001
Psychological health domain	53.7 (16.5)	34.7 (14.1)	5.654	<0.001
Social domain	57.3 (11.9)	46.0 (18.5)	3.626	<0.001
Environmental domain	49.6 (15.0)	36.6 (12.5)	4.269	<0.001

Table 3. Linear Regression Analysis of Demographic and Clinical Variables for Quality of Life

	Domains of quality of life				
	Overall domain	Physical health domain	Psychological health domain	Social domain	Environmental domain
	B (SE)	B (SE)	B (SE)	B (SE)	B (SE)
Sleep onset latency	-0.084 (0.031)*	-0.092 (0.033)*	-	-	-0.083 (0.041)*
Sleep efficiency	-	-	0.406 (0.166)*	-	-
Insomnia severity index	-0.717 (0.183)*	-	- 0.708(0.266)*	-0.617 (0.237)*	-0.761 (0.240)*
Pittsburgh Sleep Quality index	-	-2.619 (0.480)*	-	-	-
Epworth sleepiness scale	-1.365 (0.348)*	-	-2.061 (0.497)*	-1.094 (0.464)*	-1.170 (0.455)*
Fatigue severity scale	-	-0.306 (0.124)*	-	-	-
K-NIHSS	-1.127 (0.326)*	-	-	-	-1.086 (0.464)*
K-MBI	0.153 (0.071)*				
K-STAND	-0.614 (0.299)*	-	-	-	-

K-NIHSS; Korean version of National Institutes of Health Stroke Scale; Korean version of Screening Tests for Aphasia and Neurologic-Communication Disorders

-* $p < 0.05$