

## Letter to the Editor

# CORRELATION BETWEEN SWS DURATION AND INTENSITY EYE MOVEMENTS IN SLEEP CYCLES AT THE DEPRESSION PATIENTS

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## Summary

The positive correlation between slow wave sleep (SWS) duration and eye movements intensity in rapid eye movement (REM) sleep is present in the depressed patients. It is suggested an opportunity to normalize sleep through regulation of sleep structure.

**Key Words:** Slow-wave sleep, Rapid eye movements sleep, Search activity concept.

## Discussion

According to the concept of search activity (Rotenberg 2001), the REM sleep carries out function of such activity in case of temporary failure of search at awakening, compensates it and guarantees renewal of search activity in the subsequent wakefulness. The important condition for this purpose in case of the depression patients can be the factor of functional sufficiency of the REM sleep.

In our research, alongside with definition of correlation of subjective estimations of sleep and objective sleep parameters (Rotenberg et al. 2000) at healthy (K) and patients by depression (D), we estimated also correlation between objective sleep parameters. The research was realized by two groups: 10 healthy patients, average age  $43,3 \pm 10,0$  (20 night) and 30 patients by depression average age  $51,5 \pm 13,6$  (73 night). The researches have shown, that in group of the patients by depression, as against healthy, is present authentic positive correlations between duration of a phase of slow - wave sleep (SWS) in sleep cycles and parameter of intensity of eye movements (EM) in consecutive cycles of REM sleep (Table). The estimation of reliability of correlations was carried out according to Fisher's transformation. In whole such correlation is positively caused by changes directed to sleep normalization at the depression patients. With decrease of a saturation SWS in sleep structure, the level of such correlations grows, and this level objectively decreases at augmentation of a saturation SWS at the depression patients. In turn, the sleep normalization at the depression patients (no more, than in 20 % of cases) occurs to increase of eye movements intensity in consecutive cycles of REM sleep, as it was observed at the healthy (Indursky and Rotenberg 1998).

	EM1		EM2		EM3		EM4	
	K	D	K	D	K	D	K	D
SWS%		0.30		0.30		0.42		0.32
SWS1						0.25		
SWS2								0.36
SWS3				0.30		0.31		0.37
SWS4		0.38				0.35	-0.61	0.34

Thus, the received correlation of duration of a slow - wave sleep and intensity of eye movements in REM sleep assumes an opportunity of influence on sleep at the depression patients with the purposes of normalization. It is represented expedient to carry out sleep normalization by a regulation of sleep structure of the depression patients by means of stimulation during SWS and - or on delta - waves.

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