

Journal search and commentary

Article reviewed:

Decreased sleep quality and increased sleep related movements in patients with Tourette's syndrome[☆]

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Objectives

To study the sleep architecture of patients with Gilles De La Tourette's syndrome (Tourette's syndrome), and to evaluate the influence of the diurnal clinical severity of the syndrome on sleep architecture.

Study design

Between group comparison for patients with Tourette's syndrome and matched healthy controls.

Study population

Twenty five Tourette's syndrome patients (16 men and 9 women, mean age 29 ± 7 years, range 16–44 years) and 11 control subjects (7 men and 4 women, mean age 29 ± 5 years, range 24–39 years). During this study 12 Tourette's syndrome patients were taking psychoactive medications such as antidepressants, dopamine blockers and anticholinergics. Children with Tourette's syndrome were not studied.

[☆] Cohrs S, Rasch T, Altmeyer S, Kinkelbur J, Kostanecka T, Rothenberger A, Rütther E, Hajak G. *J Neurol Neurosurg Psychiatry* 2001;70:192–197.

Methods

Clinical severity of the Tourette's syndrome symptoms occurring during waking was assessed by the Tourette's syndrome severity scale. Sleep architecture was evaluated by means of a standard full-night polysomnography performed after a night of adaptation to the laboratory. The presence during sleep of motor and vocal tics and non-tic movements were analyzed from audio-video monitoring recorded during the polysomnogram.

Results

Compared with healthy controls, patients with Tourette's syndrome showed a reduced and fragmented sleep pattern characterized by decreases in sleep efficiency and slow wave sleep percentage, and increases in sleep latency, sleep stage I percentage, number of awakenings, sleep stage changes, and overall movements.

In patients with Tourette's syndrome, motor tics were detected in all stages of sleep, but more frequently during REM sleep. Non-tic movements occurred more frequently in patients than in controls.

Clinical severity of the Tourette's syndrome correlated with increased number of sleep stage changes ($r = 0.51$; $P < 0.01$), increased number of awaken-

ings ($r = 0.52$; $P < 0.01$) and decreased sleep efficiency ($r = 0.39$; $P < 0.05$).

Conclusions

In patients with Tourette's syndrome, polysomnographic studies show a disrupted sleep architecture that correlated with the clinical severity of the syndrome.

Comment

This is the first study that has evaluated in patients with Tourette's syndrome the influence of clinical severity of the daytime symptoms of the syndrome on objective sleep quality by means of polysomnography. Previous articles that studied sleep quality in Tourette's syndrome included a smaller number of patients and only a few performed polysomnographic studies. In addition, the authors in this article evaluated systematically the persistence and characteristics of tics during sleep. The results support previous evidence that, unlike tremor or chorea, motor tics are one of the daytime involuntary movements that can be detected as potentially clinically significant events during sleep.

One of the main findings of this study is that the severity of the syndrome was correlated with three sleep variables (sleep efficiency, number of awakenings and number of sleep stages changes). The more affected patients showed more reduced and fragmented sleep architecture. Motor tics during sleep were not, however, directly responsible for sleep disruption, since these movements were not significantly associated with electroencephalographic arousals or awakenings. The authors suggested that dysfunction of the serotonergic and noradrenergic systems may explain the finding that decreased sleep quality was associated to Tourette's syndrome severity during the daytime.

In addition to motor tics, the authors also evaluated the non-tic movements during sleep. However, in this study there is no mention of the presence or absence of periodic limb movements during sleep in Tourette's syndrome patients. Periodic limb movements during sleep is a frequent cause of sleep fragmentation and it has been detected in patients with Tourette's syndrome [1].

Children with both Tourette's syndrome and attention-deficit hyperactivity disorder (ADHD) show a high incidence of subjective sleep complaints, but for the Tourette's syndrome patients these complaints are limited primarily to those who have the commonly comorbid condition of ADHD [2]. Given these prior reports and the recent reports of PLMS commonly occurring in ADHD it is curious that the authors did include in this article any analyses of the possible coexistence of ADHD or other psychiatric disorders. It may be that the severity of the ADHD or occurrence of ADHD correlates with the severity of the Tourette's syndrome. Until this issue is considered it is hard to determine the degree to which the disrupted sleep in these patients relates to features unique to Tourette's syndrome rather than to co-morbid conditions as suggested in the prior studies.

It is also somewhat unusual that self-reported sleep complaints (restless legs, difficulty in sleep initiation, frequent awakenings, etc) were not analyzed in relation to the objective sleep measures. It would have been useful to compare such reports with those from prior studies relying on these measures.

References

- [1] Voderhoizer U, Muller N, Haag C, Riemann D, Straube A. Periodic limb movements during sleep are a frequent finding in patients with Gilles de la Tourette's syndrome. *J Neurol* 1997;244:521–526.
- [2] Allen RP, Singer HS, Brown JE, Salam M. Sleep disorders in Tourette Syndrome: a primary or unrelated problem? *Pediatr Neurol* 1992;8:275–280.