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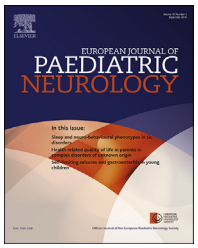

Original Article

Sleep, anxiety and psychiatric symptoms in children with Tourette syndrome and tic disorders

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ABSTRACT

Objective: The current study evaluated the relationship between tic, sleep disorders and specific psychiatric symptoms (anxiety, depression, obsessive compulsive symptoms).
Methods: Assessment of 36 consecutive children and adolescents with tic disorders included: the Yale Global Tic Severity Scale (YGTSS) to assess the severity of tic symptoms; the Self-administered scale for children and adolescents (SAFA) to evaluate the psychopathological profile; a specific sleep questionnaire consisting of 45 items to assess the presence of sleep disorders.

An age and sex-matched control group was used for comparisons.
Results: Sleep was significantly more disturbed in patients with tic disorders than in controls. Difficulties in initiating sleep and increased motor activity during sleep were the most frequent sleep disturbances found in our sample. Patients showed also symptoms of anxiety (SAFA A), depressed mood (SAFA D) and doubt–indecision (SAFA O). Additionally, difficulties in initiating sleep resulted associated with other SAFA subscales relative to obsessive–compulsive symptoms and depression symptoms. Furthermore, anxiety symptoms (SAFA A) resulted associated with increased motor activity during sleep.
Conclusions: Findings confirm literature studies reporting high frequency of sleep problems, anxiety and other psychopathological symptoms in patients with tic disorders, and support the hypothesis that intrusive thoughts and other emotional disturbances might disrupt the sleep onset of these patients. These results suggest the importance of a thorough assessment of sleep and psychiatric disturbances in patients with tic disorders.

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1. Introduction

Tic disorders (TicD) are the most frequent movement disorders in children: they have been estimated to be present in the 5–20% of children in the general population. TicD include different clinical conditions among which Tourette syndrome (TS) was the first described and the most studied in literature. TS is characterized by the presence of sudden, involuntary and repetitive movements or phonic utterances for a period longer than 1 year. Typically, children with TicD or TS show a wide variety of associated conditions, such as obsessive–compulsive disorder (OCD), attention deficit and hyperactivity disorder (ADHD), emotional and behavioural problems, and learning disabilities.[1]

In his seminal paper[2] Gilles de la Tourette described the presence of sleep disorders in 2 out of his 9 patients with tics, but this finding was considered simply a coincidence. In the last thirty years, an increasing number of studies have investigated the psychopathological features of TS and, among others, sleep disorders. Overall, these studies have demonstrated a higher prevalence of sleep disturbances both in adults and in children with TS in comparison with the general population.[3–6]

Notably, data from the Tourette Syndrome International Database Consortium showed the presence of a history of sleep disorders in 25% of 5000 TS patients studied.[3] The most common problems are represented by disorders of arousal (sleep walking, pavor nocturnus),[7–9] enuresis, sleep talking, difficulty with initiating and maintaining sleep, early morning awakenings, sleep-related anxiety, and restlessness during sleep.[4,5]

Several lines of evidence indicate a meaningful association between OCD and TicD/TS including phenomenological overlap, evidence from family and genetic studies, and the potential involvement of basal ganglia circuitry and streptococcal infection in both conditions. OCD occurs in approximately 30% of TS patients, but up to 60% can experience obsessive–compulsive symptoms (OCS) at some point in their lifetime.[10–12]

Since OCD is frequently comorbid with other psychiatric conditions, its association with TS has been correlated with a higher risk of other anxiety disorders.[13–16]

Furthermore, several studies described a larger presence of anxiety in TS compared to controls ranging from 9 to 30%.[17–21]

A bidirectional relationship seems to be present between anxiety and sleep disorders leading to a negative outcome on children's neurobehavioral functioning. Anxiety is characterized as a state of hyper-vigilance or hyper-arousal and, as a result, is intimately tied with the regulation of sleep.[22] Therefore, sleep and anxiety can be considered as opposite processes in the arousal regulation. Abnormality in one of them claims for the evaluation of both, and of the arousal regulation system.[23]

Interestingly, longitudinal studies showed that the presence of sleep problems during the childhood is predictive of anxiety disorders in adolescence or adulthood.[24,25]

Moreover, sleep and anxiety disorders were found associated with severity of tic symptoms in patients with tics.[26,27]

At present, few studies evaluated the presence of sleep, anxiety and psychiatric disorders in the same group of patients. Aims of this study were: a) to evaluate the prevalence of sleep disorders, anxiety and other specific psychiatric conditions (depression and obsessive–compulsive symptoms) in a population of children with TicD or TS; b) to analyse the effect of clinical variables (severity of tics, ongoing drug treatment) on sleep disorders and specific psychiatric conditions; c) finally, to assess the association between sleep disorders and specific psychiatric conditions in TicD patients.

2. Materials and methods

2.1. Patients

Between November 2010 and November 2012 a total of 36 consecutive subjects, that requested a consultation for tic disorders, was assessed at the Department of Paediatrics and Child Neuropsychiatry of the Sapienza University of Rome.

Evaluation of all subjects included a complete medical history with particular regard to family history of tics, duration and clinical characteristics of tic symptoms; neurological and psychiatric examination.

Based on the diagnostic criteria established by the DSM-IV, the patients were classified as: Tourette's syndrome (TS), characterized by the presence of multiple motor and phonic tics, even not simultaneously, for a period longer than one year; Chronic motor or phonic Tic Disorder (CTD), characterized by the presence of multiple motor or phonic tics for a period longer than one year.

All subjects were administered the Yale Global Tic Severity Scale (YGTSS) for the assessment of the severity of tic symptoms, the Self-administered scale for children and adolescents (SAFA) to evaluate the psychopathological profile, and a specific sleep questionnaire consisting of 45 items that assess the presence of sleep disorders during the six months prior to the clinical evaluation, that has been previously used for prevalence studies in other diseases.[28]

2.2. Controls

In order to compare the prevalence of sleep disorders in our sample, a control group, age and sex matched, consisting of 266 children (191 males and 75 females) with a mean age of 11.5 years, was recruited in primary and secondary schools during a survey on sleep characteristics in childhood. All these subjects were typically developing children with no specific abnormalities.

The study was approved by the local Ethic Committee. All parents gave informed consent to the procedure.

2.3. Measures

1. Yale Global Tic Severity Scale (YGTSS)

This is the most widely used tool for assessing the severity of tics. Through a semi-structured interview, aimed at both children and parents, the clinician obtains information about the specific features and the anatomical distribution of tics that occurred during the past week. Based on the information gained from the interview is drawn up a list of motor and vocal