Tourette Syndrome in Adults

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ABSTRACT

Objective: To examine clinical characteristics of adult Tourette syndrome (TS)patients compared to childhood TS. **Background**: TS, defined by DSM-IV-TR, specifies onset of the disorder before age 18. Consequently, the clinical phenotype and natural course of TS in adults is not adequately studied. **Methods**: Gender, age, duration and types of tics, co-morbidities, family history, and medications for all new patients with TS in the past 5 years who were 50 years old or older at their initial evaluation at the Movement Disorders Clinic at Baylor College of Medicine were retrospectively reviewed. They were compared to all TS patients evaluated in our clinic between 2003 and 2006, whose age was ≤18 (N = 221, mean age 12.9 ±3.2 years). **Results**: Of 41 adult patients with TS, 35 (85.4%) had onset of tics before age 50 with 6 (14.6%) patients experiencing their first tics after age 50. Adult TS patients had significantly more facial (p<0.001), neck (p=0.002), and body tics (p<0.001), while children with TS had more phonic tics (p<0.001), complex motor tics (p<0.001), and self injurious behaviors (p<0.001).. Children exhibited higher rates of attention deficit and hyperactivity disorder (ADHD) (p=0.004). Adults with TS had a higher rate of substance abuse (p<0.001). **Conclusion**: The majority of adult TS patients experienced their first symptoms before age 50, indicating TS in older adults largely represents a re-emergence or exacerbation of earlier symptoms. TS in adults has similar clinical characteristics to childhood TS, except for lower frequency of complex motor tics, self injurious behaviors, and ADHD.

BACKGROUND

Tourette syndrome (TS) is a multifaceted neurobehavioral disorder consisting most notably of motor and phonic tics, often accompanied by a variety of behavioral co-morbidities including attention deficit disorder with hyperactivity (ADHD), obsessive compulsive disorder (OCD), and difficulties with impulse control (1). According to DSM-IV-TR criteria, the diagnosis of TS includes onset before age 18 (2). While many cases of TS which present in childhood markedly improve or even completely remit as patients age (3), adults can also be affected by TS (4-8). Self-injurious tics which continue into adulthood can cause physical injury to the patient and premonitory urges associated with tics can lead to attention problems, even when adults are able to suppress the physical tics (9). Previous studies have shown that one-third of children diagnosed with TS will develop clinically significant OCD symptoms by adulthood (5), which can negatively impact their overall function and work performance, often more than the tics themselves (1).

As most studies on TS have focused on children, there is limited information on natural history, co-morbidities and tic characteristics of TS in the adult population. The primary aim of our study was to examine and compare the clinical characteristics and natural history of TS in adults with those in a typical childhood TS population.

METHODS

We reviewed the medical records of all patients diagnosed with tics who were 50 years old or older and who presented for their initial evaluation in the last five years to the Movement Disorders clinic at Baylor College of Medicine. Except for the age at onset, all subjects met the DSM-IV diagnostic criteria for TS. We collected relevant clinical data including age, age at onset, gender, and current or past medications used in the treatment of neurologic or non-neurologic conditions, family history of neurologic and other medical problems, and any abnormalities noted on neurological examination.

We also categorized the tics as simple motor or phonic, complex motor or phonic, and noted the presence or absence of coprolalia, copropraxia, and self injurious behaviors (SIBs). "Malignant TS" was defined as TS symptoms resulting in >2 emergency room visits or >1 hospitalization (10).

We also noted the time course of symptoms, including the evolution of tic characteristics, the duration of symptoms, premonitory sensations, and potential triggers or precipitating factors. Additionally, we collected information on co-morbidities, including specific attention to ADHD, OCD, mood disorders, oppositional behavior, substance abuse, anxiety disorders, and suicidal ideation.

We then compared the same information with a group of 221 TS patients ≤ 18 years old who presented to the Movement Disorder Clinic between June 2003 and July 2006 (mean age 12.9 ± 3.2 years).

METHODS - continued

The data was abstracted from the medical records and entered into a database for subsequent analysis. Statistical analyses were performed as follows: Means, medians, standard deviations, and ranges were used to describe continuous variables. Frequencies and percentages were used for categorical data. Pearson's chi-square test, and where one or more cell counts were less than 5, Fisher's Exact test were used to compare cohorts. All tests were judged for statistical significance using a two-sided test with a probability of 0.05 or less considered significant. All analyses were performed using Stata IC v.10.

CONCLUSION

- In clinical practice, when confronted with an adult patient who manifests tics or tic-like behavior it is important for the physician to consider the diagnostic criteria for TS and to determine whether the patient has a history of undiagnosed TS, including tics which have remitted and are now re-emerging, or previous tics which have become exacerbated (1). Alternatively, the physician should consider the possibility of secondary tic conditions due to stroke (12, 13), infection, trauma, and drug exposure (1). This is especially important as a greater proportion of adult TS patients have secondary tic conditions when compared to child TS patients (7).

RESULTS

- More children were found to have co-morbid ADHD (p=0.004). Children and adults with TS exhibited equal likelihood of OCD behavior, but significantly more children reported having a family history of OCD (p<0.001). Family history of ADHD, tics, and other neurological co-morbidities were equal among the two groups. The rate of substance abuse was found to be higher in the adult TS population (p<0.001), but the childhood TS population reported higher rate of mood disorders (p=0.003) although the rates of anxiety and depression or suicidal ideation were not significantly different between the two groups (Table 1).

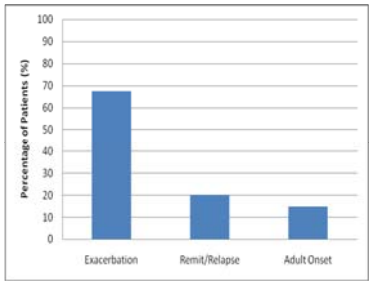
- We included 41 adults (mean age 59.3 years ± 6.7, range 50.7 – 80.8) and 221 children (12.9 ± 3.2 years, range 5.0-18.0) who met our criteria for entrance into the study. Of the 41 adults, 35 (85.4%) presented because of a recurrence or an exacerbation of their tics that had onset before the age of 50 (mean age at onset 10.4 years, range 5.8 – 33.9). Thus only 6 (14.6%) patients had onset of their tics at or after age 50 years (mean age at onset 56.3 ± 4.4, range 53.2-65.0) (Figure 1).

- When types of tics were compared between children and adults with TS, we observed that the adult population had more facial (p<0.001), neck (p=0.002), and body tics (p<0.001), while the child population had more phonic tics (p<0.001), complex motor tics (p<0.001), and SIBs (p<0.001) (Figure 2).

Table 1
Demographics and Baseline Characteristics

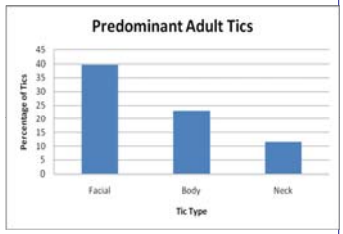
Variable	Adult TS (%)	Childhood TS (%)	p-value
Number of Patients	**41**	**221**	
Mean Age	**59.3 ± 6.7**	**12.9 ± 3.2 years**	
Age at Onset	**19.7 ± 18.7**	**6.0 ± 2.7**	
Number of Patients with onset ≤ 18	**30 (73.17)**	**221 (100)**	
OCD	23 (56.1)	129 (58.4)	1.000
ADD/ADHD	15 (42.9)	152 (68.8)	0.004
Oppositional behavior	5 (15.6)	59 (26.7)	0.200
Substance abuse	9 (24.3)	2 (0.90)	<0.001
Mood disorder	17 (46.0)	47 (21.5)	0.003
Anxiety/depression	9 (32.1)	45 (20.4)	0.221
Suicidal ideation	1 (3.2)	17 (7.7)	0.707
Family history tics	24 (61.5)	142 (68.6)	0.456
Family history OCD	8 (26.7)	126 (61.2)	<0.001
Family history ADHD	12 (41.4)	89 (43.0)	0.869
Family history other neurological comorbidities	21 (60.0)	102 (48.8)	0.274

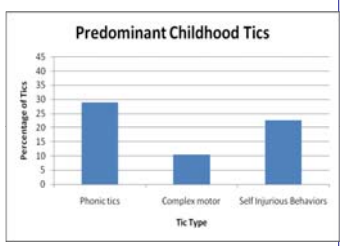
Figure 1
Presentations of Tourette Syndrome



Tourette syndrome exacerbation is described as a patient in whom the first symptoms of TS appeared when they were younger than 50, but their condition worsened when they were 50 or older. The remit/relapse pattern of presentation describes a patient who had symptoms of TS when they were younger, but the symptoms remit and then relapsed when the patient was 50 or older. Patients who experience their first symptoms of TS when they are 50 or older are described as having adult onset TS.

Figure 2
Comparison of Tic Types in Childhood and Adult TS





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