

Original Article

Co-Morbidity of Attention Deficit Hyperactivity Disorder (ADHD) and Tourette Syndrome in Child Referral Psychiatry Clinic in IRAN

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Objectives: Tourette syndrome is a disorder with motor and vocal tics, which has many psychiatric co-morbidities. Attention Deficit Hyperactivity Disorder (ADHD) is one of co-morbid features of this syndrome. The aim of this research is studying Tourette and co morbidity ADHD in school age children. One of our purposes is to identify the range of ADHD in Iranian Tourette patients.

Methods: Thirty children with Tourette syndrome attended in an adolescence psychiatry disorders clinic studied during one year using a descriptive, cross sectional method. Control group selected from students of Tehran schools matched to first group in age and sex. K-SADS questionnaire used to investigate the presence of ADHD in both groups. Results analyzed with SPSS.

Results: A clear pattern of co-morbidity was demonstrated with ADHD. Seventy percent of Tourette group had ADHD; this co-morbidity in both sexes was different (20% of girls and 80% of boys).

Conclusions: Although the frequency of ADHD co-morbidity with Tourette is high, but in our study was higher (50-60% versus 70%). Hence every Tourette patients must be studied for co-morbidity. Regarding to small size of studied people, similar studies must be performed with larger sample size.

Key words: Attention Deficit Hyperactivity Disorder (ADHD), Tourette syndrome of childhood, Co-morbidity, K-SADS.

Introduction

Tourette disorder is a chronic, potentially disabling, neuropsychiatric disorder of childhood (1). Its symptoms are involuntary multiple motor and phonic tics, not necessarily concurrent (2). Tics show waxing and waning patterns in childhood, (2-3) with a tendency of decline in late childhood (3). The prevalence of Tourette disorder is ranging from 3-5 per 10,000 (3-4), it is estimated that milder cases were not counted (5). The co-morbidity of Tourette disorder was widely discussed (3-4). Attention-Deficit Hyperactivity Disorder is more than any other mental disorders co morbid with Tourette (6-7). Data from clinical studies indicate that ADHD symptoms occur in half or all of Tourette patients. In some studies Tourette diagnosis, has been diagnosed after ADHD (8).

Material and Methods

This study performed in Rozbeh Child and Adolescence Psychiatry Clinic of Tehran for one

year. Thirty patients in range of 7-18 years were recruited in the study. All of 30 children with a clinical diagnosis of Tourette disorder were examined individually by the first authors, also visited by other members of the team. Sampling methods were simple descriptive-analytical method and cross sectional method. Parents were interviewed in accordance with structured DSM-IV-TR. All children in two groups had IQ test, numbers lower than 84 were failed for research. This was an exclusion criterion. There were 5 girls and 25 boys in our group. We asked to keep on their medications. At the same time 30 cases were chosen that study in primary and high school in Tehran. This group was matched with our patients group in sex and ages, as well. They were chosen by chance with numbers from primary and high schools in Tehran. Two groups were studied with (K-SADS) for psychiatric disorders. K-SADS (K-SADS is a Kiddy Schedule for Affective Disorder & Schizophrenia for children) was used to investigate the presence of ADHD in

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both groups. It is a standard scale, which is being used since 1380.

All data were analyzed by SPSS software and statistical tests (CHI-square, fisher exact test, Mental Hanzal, Cochran, Paint test, PAIR t-TEST).

Results

In this study thirty children with Tourette disorder (5 girls and 25 boys) investigated (16.7 % were girls and 83.3% were boys). Their average age was 13.73 (SD=2.06). Majority of them (63.3%) were in 10-15 years old range. While 80% of boys with Tourette had ADHD, in girls this co-morbidity was 20% (Table 1). Average age of Tourette patients with ADHD co-morbidity was slightly less than Tourette itself. This finding was not statistically significant. Twenty percent of them (6 patients) had been referred for evaluation by school health officers, 40% by pediatricians (12 patients) 23.3% (7 patients) by neurologists, 10% (3 patients) by general practitioners and 6.7% (2 patients) by their parents (Table 2).

In recruited patients, 53.3% (16 patients) received no medication and 46.7 % (14 patients) received neuroleptic for their tics prior the study. Twenty-four patients (80%) of Tourette patients had motor tics as a disturbing problem and vocal tics as a problem found in 17 patients (56.7%). In Tourette group, 1 girl and 20 boys (70%) had Attention Deficit Hyperactivity Disorder. In control group, no one had ADHD (Table 3). There was a significant difference ($p < 0.05$).

Table 1: Absolute and relative frequency distribution based on ADHD co- morbidity situation and sex

Co-morbidity /Sex	+		-		total	
	number	%	number	%	number	%
Boy	20		5	20	25	100
Girl	1		4		5	100
total	21	70	9	30	30	100

Table 2: Source of referral in clinical cases of Tourette disorder

Source of referral	number	%
pediatrician	12	40
neurologist	7	23.3
School health officer	6	20
General practitioner	3	10
Parent without prior consultation	2	6.7

Table 3: Absolute and relative frequency distribution of Tourette disorder patients based on ADHD co-morbidity situation

Affection situation/Group	+		-		total	
	number	%	number	%	number	%
control	0		0		30	100
study	21	70	9	30	30	100
total	21	70	9	30	60	100

Discussion

In this study boys to girls ratio was 5 to 1, similar to a study in Sweden (their ratio was 6 to 1) (9), but other studies reported higher ratios (10). Some researches show this ratio is lower, approximately, 3 to 1 (11). This study has showed, 73.3% of children with Tourette disorder referred to the other clinics. Base on some studies from every 6 or 7 of patients, only one patient referred for checkup (12-13) in the present study. Among patients 63.1% of them were treated by relative and appropriate medicine for their co-morbid psychiatric disorders.

In this study boys with Tourette have higher co-morbidity with ADHD and average ages in co-morbid Tourette group was slightly lower than Tourette patients. These findings are significant and show that, at first all Tourette children must be examined for ADHD and other co-morbidities. Therefore every Tourette patient must be examined for psychiatry co-morbid especially ADHD by structural or semi structural interview. We showed 70% of our patients had Attention Deficit Hyperactivity Disorder. In another study two thirds of the Tourette, group met the clinical criteria of ADHD. The degree of clinical impairment is more strongly correlated with the attention deficits than with the tic symptoms per se (14). Spencer showed this result, as well (4). Clinically the findings confirm other research results, indicating the importance of ADHD in understanding the behavioral problems that often associated with Tourette syndrome. Additional ADHD co-morbidities should be considered in diagnosis, management, training (15) and accurate prognostic prediction in the course of illness or acquired improvement (16), which may affect the patients' treatment process (17).

Limitation and Suggestions

Although present study performed in child referral psychiatry clinic lasted one year, the sample size of present study was rather small, so there is a need for performing similar research in large groups in different clinics of Iran. The small sample size makes our findings' generalization less reliable.

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