Conversion disorder in children and adolescents: clinical features and comorbidity with depressive and anxiety disorders

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SUMMARY: Pehlivantürk B, Ünal F. Conversion disorder in children and adolescents: clinical features and comorbidity with depressive and anxiety disorders. Turk J Pediatr 2000; 42: 132-137.

The aim of this study was to determine some of the demographical and clinical characteristics of conversion disorder in children and adolescents and to ascertain comorbidity with depressive and anxiety disorders. For this purpose 51 children and adolescents (mean age: 13.2 ± 1.9, range: 9-16 years) who met DSM-IV criteria for conversion disorder were compared with a control group. The subjects of this study were mostly postpubertal girls, and pseudoseizure was the most frequent presentation. Misdiagnoses were frequent among these patients. Eight (15.7%) patients received a comorbid diagnosis of major depression and 19 (37.2%) patients had comorbid anxiety disorders according to DSM-IV diagnostic criteria. Significant differences between the two groups on depression and anxiety scales supported the clinical findings. It was concluded that clinicians should screen every patient with conversion disorder for major depression and anxiety disorders for a better outcome.

Key words: conversion disorder, children, adolescents, depression, anxiety.

Medically unexplained physical symptoms have long been recognized as common and problematic in pediatric clinics[1]. Children have immature cognitive and verbal skills and their capacity for emotional expression is limited. Considering the communicative role of somatic symptoms, it is not surprising that somatic complaints are frequent in children[2].

DSM-IV defines conversion disorder as a disorder characterized by the presence of one or more neurological symptoms that cannot be explained by a known neurological or medical disorder. In addition, the diagnosis requires psychological factors to be associated with the initiation or exacerbation of the symptoms[3].

Literature from western countries appears to indicate that a diagnosis of conversion disorder is relatively rare in children and adolescents. In contrast to western samples, the epidemiological or clinical studies from India have found conversion disorder in children and adolescents to be the most common psychiatric disorder[4,5]. The clinical studies from Turkey also showed that conversion disorder is a prevalent psychiatric problem for children and adolescents in this country[6,7].

Although it causes major clinical, social and economic problems[8], the studies on conversion disorder are rare. Studies that compared patients with somatic complaints to healthy controls demonstrated a frequent association between somatic symptoms and psychiatric disorders, particularly depression and anxiety disorders[9-11]. However, psychiatric comorbidity in children and adolescents with conversion disorder is poorly studied[12].

In this study, it was planned to determine some of the demographic and clinical characteristics of conversion disorder in children and adolescents, to ascertain comorbidity with depressive and anxiety disorders and to compare with a control group.

Material and Methods

Sample

Children and adolescents with somatic complaints attending the pediatric and adolescent outpatient clinics of a university hospital were evaluated. After a medical investigation to rule out organic disorders, 98 patients aged 9-16 years were referred to the Department of Child Psychiatry.

From 98 initial inquiries, 27 subjects were excluded because they were better accounted for by other somatoform disorders according to DSM-IV diagnostic criteria. In this group undifferentiated somatoform disorders (n = 13), pain disorders (n = 8), somatoform disorders not otherwise specified (n = 4) and somatization disorders (n = 2) were determined. A further 16 subjects were excluded since their somatic symptoms were better accounted for by anxiety disorders. These patients were diagnosed as panic disorders (n = 7), separation anxiety disorders (n = 5), generalized anxiety disorder (n = 1) and anxiety disorders not otherwise specified (n = 3). Other exclusion reasons included psychotic disorders and mental retardation (n = 4). The remaining 51 children and adolescents with conversion disorder according to DSM-IV diagnostic criteria constituted the conversion disorder group.

Fifty-one patients who were brought to the pediatric and adolescent outpatient clinics and matched to the conversion disorder group for age and gender formed the control group. They were matched to the conversion disorder group for age and gender by the following procedure: when a child was accepted to the conversion disorder group, the first patient with the same gender and age on the pediatric or adolescent outpatient list was included in the control group. Exclusion criteria from the control group were the presence of psychiatric symptoms, clinically determined psychotic disorders or mental retardation and parent's refusal to take part in the study.

Measures

Interview form : The researchers developed an interview form consisting of three parts. The first part was designed to record the demographic data. In the second part, the clinical data including the actual complaints of the patient and the family, duration of the symptoms, precipitating medical and psychosocial factors, complications, previous medical problems, and family history of medical and psychiatric disorders were recorded. Medical history details were confirmed with hospital records. The third part of the form included the DSM-IV diagnostic criteria of somatoform disorders, anxiety disorders and affective disorders.

Children's Depression Inventory (CDI) : The CDI is a downward extension of the Beck Depression Inventory for adults[13]. This is a child self-report measurement for depression, suitable for children aged 6-17 years. Evidence supporting the instrument's reliability and validity for the Turkish population is provided by Öy[14] and its cut-off point for depression is determined as 19 points.

State-Trait Anxiety Inventory (STAI) : This is a self-report instrument developed by Spielberger et al.[5] to measure the subjective level of anxiety both in special situations and in general. STAI state scale measures how the subject feels at a particular moment in time and STAI trait scale assesses the general level of anxiety. The mean values in the normative study of STAI range from 36 to 41 points for children 14 years or older. Higher scores indicate higher levels of anxiety. It was standardized for the Turkish population by Öner and LeCompte[16].

State-Trait Anxiety Inventory for Children (STAIC) : STAIC is a self-report instrument that measures the level of anxiety in children[17]. It is a downward extension of STAI and is widely used for children aged 9-14 years. Data supporting the instrument's reliability and validity for the Turkish population is provided by Özusta[18].

Procedure

Children and adolescents with somatic complaints were assessed initially in the pediatric and adolescent outpatient clinics to rule out organic disorders. This assessment consisted of physical and neurological examinations, appropriate laboratory tests and consultations with a pediatric cardiologist or neurologist when necessary. Children without positive medical findings were referred to the department of Child Psychiatry. Two experienced child and adolescent psychiatrists independently evaluated all of the subjects according to DSM-IV diagnostic criteria. The interrater reliability was high (Kapp = 0.877).

Children's Depression Inventory (CDI) was applied to all subjects. However, division of the conversion disorder group due to the age range in the validity and reliability studies of anxiety scales was unavoidable. Thus, children younger than 14 years filled out the STAIC and adolescents older than 14 years filled out the STAI.

Statistical analysis was performed with a computer package program (SPSS 8.0). Chi-square tests and Mann Whitney U test were used with non-parametric data and t-test with parametric data. Fisher's exact test was applied when necessary and all tests were two tailed.

Results

Demographic Characteristics

There were 37 female (72.5%) and 14 males (27.5%) in the conversion disorder group. The age range of this sample was from 9 to 16 years and the mean age was 13.2 ± 1.9 years. Thirty-three patients (64.7%) were adolescents (aged 12 to 16 years) and 18 patients (35.3%) were children (aged 9 to 12 years). The female/male ratio was uniform in these age groups ($x^2 = 0.01$, $p = 0.969$). Mean educational level was 7.0 ± 4.0 years and ranged from 4 to 11 years. The control group consisted of 51 patients who were matched to the conversion disorder group for age and gender. Most of the patients in the conversion disorder group came from middle class nuclear families (68.6%, n = 35), with the mother frequently being a housewife (84.3%, n = 43) and the father an employee of the state (68.6%, n = 35). Mean educational level was 7.0 ± 4.0 years for mothers and 10.0 ± 3.8 years for fathers. There were no statistically significant differences between the conversion disorder group and the control group in the demographical parameters, including family type and size, age, educational level and the professions of the parents, and socioeconomic class.

Clinical Parameters

Pseudosezures were the most frequent (76.5%, n =.39) symptoms in the conversion disorder group. Motor symptoms or deficits in three patients (5.9%) and mixed presentation ('involuntary' movements and sensory deficits) in one patient (2.0%).

The age of onset for the conversion disorder symptoms ranged from 8 to 15 years (mean 12.2 ± 2.0 years), and the interval between the onset of the symptoms and the time of the diagnosis ranged from 1 to 60 months (mean 11.8 ± 13.5 months).

A specific event or condition associated with the onset of somatic smyptoms was reported in 47 patients (92.2%). These were relationship problems in most children and adolescents (52.9%, n = 27). In others (25.5%, n = 13), the initiating factor was a medical illness in the family or close environment. Academic problems were also reported to be associated with the beginning of somatic symptoms (13.7%, n = 7). It was found that absence from school was common (66.7%, n = 32) among the conversion disorders group, and two children left school because of their symptoms.

It was noticed that 37.3 percent of the patients (n = 19) were misdiagnosed as organic disorders (mostly epilepsy, n = 14) and 31.4 percent (n = 16) took medications according to these diagnoses. Organic misdiagnoses were more frequent in children younger than 12 years ($x^2 = 3.98$, $p = 0.045$).

Chronic medical illness in the family and close environment was reported in 24 patients (47.1%) in the conversion disorder group and in 15 patients (29.4%) in the control group. This difference tended to be statistically significant ($x^2 = 3.36$, $p = 0.06$). The corresponding rates for the psychiatric disorders were significantly ($x^2 = 17.26$, $p = 0.00003$) higher in the conversion disorder group (33.3%, n = 17) than in the control group (2.0%, n = 1). The psychiatric disorders in the families of the conversion disorder group were conversion disorder (17.6%, n = 9), affective disorders (5.9%, n = 3), substance abuse (3.9%, n = 2), psychotic (3.9%, n = 2), and obsessive compulsive disorder (2.0%, n = 1).

Comorbid Disorders

Eight (15.7%) patients in the conversion disorder group received a comorbid diagnosis of major depression and 19 (37.2%) patients a comorbid diagnosis of anxiety disorders according to DSM-IV diagnostic criteria. Two of the patients who were diagnosed as anxiety disorders also fulfilled the diagnostic criteria for major depression. Although the association between age and comorbid anxiety disorders was statistically insignificant, this was not the case in patients with comorbid major depression. It was found that all

of these patients were adolescent (12-15 years). The comorbid anxiety disorders were generalized anxiety disorders (9.8%, n = 5), separation anxiety disorders (5.9%, n = 3), social phobia (2.0%, n = 1), specific phobia (3.9%, n = 2), panic disorders (2.0%, n = 1), and anxiety disorders not otherwise specified (13.7%, n = 7).

Scales

The CDI scores in the conversion disorder group were significantly higher than in the control group (Table I). Eight (15.7%) patients in the conversion disorder group scored over the pathological cut-off point of 19, and seven of those were diagnosed as major depression in the interviews. Two patients (3.9%) in the control group scored above this point and this difference was found statistically significant ($x^2 = 3.99$, $p = 0.0457$). The CDI scores in adolescents (12-16 years) with conversion disorder (15.0 ± 9.2) were significantly ($t = 3.65$, $p = 0.001$) higher than those of the control group (8.5 ± 4.7). However, the CDI scores in children (9-12 years) did not differ significantly between the two groups.

Table I. Comparison of the CDI, STAI and STAIC Scores Between the Groups

	Conversion disorder group		Control group			
	$\bar{x}$	sd	$\bar{x}$	sd	t	p
CDI	13.4	8.0	8.3	5.2	3.79	0.0001
STAIC						
State	35.4	7.7	32.8	5.5	1.58	0.12
Trait	39.7	6.4	34.0	5.9	3.77	0.0001
STAI						
State	40.8	10.6	39.1	8.9	0.51	0.61
Trait	48.5	10.1	41.2	8.3	2.34	0.025

CDI: Children's Depression Inventory; STAI: State-Trait Anxiety Inventory; STAIC: State-Trait Anxiety Invertory for Children.

The differences between the two groups on the STAI and STAIC state scores were found statistically insignificant. On the contrary, STAI and STAIC trait scores in the conversion disorder group were significantly higher than those of the control groups (Table I).

Discussion

Conversion disorder is three times more common in girls than in boys, is unusual in children less than nine years old and shows an increasing prevalence with age through adolescence[19-24]. In accordance with these reports, the subjects of this study were mostly postpubertal girls. Pseudoseizure was the most frequent presentation followed by motor symptoms like gait disturbances, which was also consistent with the findings of earlier studies[4,19-21,25-27].

In our clinical survery, the interval between the onset of the symptoms and time of the diagnosis was approximately one year. The late admission to the Child Psychiatry Department and the high rate of misdiagnoses are probably because of the diagnostic difficulties in conversion disorder. The repeated and often extensive medical evaluations may have prolonged this period. Increased health care utilization[28,29] and unnecessary laboratory examinations or medical treatment were also documented in the earlier studies[23,30,31]. In this study, the frequency of te organic misdiagnoses was higher in children younger than 12 years. This may imply the difficulties of evaluating psychological factors in children.

Conversion disorder or somatic complaints might cause evident disability in academic and social function, and school absences might influence the academic success. In this study, it was found that school absences were common among the conversion disorder group, and two children left school because of their symptoms. In several other studes, it was also shown that children with somatic symptoms were more likely to have academic difficulties[9,20,32-34].

The diagnosis of conversion disorder requires psychological factors to be associated with the initiation or exacerbation of the symptoms[3]. It is interesting that most of the parents could recognize the associations between the psychological factors and somatic symptoms. Although this parameter was not comparable with the control group, it is thought that these psychological associations could still contribute to other investigations.

It is known that psychiatric disorders in families of children and adolescents with conversion disorder are prevalent[19,22,35]. Considering that similar results were found in this study, it is suggested that the whole family should be evaluated in conversion disorder. An assessment of the etiological role of medical and psychiatric disorders in the family and close environment could also be helpful.

The majority of the psychiatric comorbidity studies in children and adolescents with somatic symptoms deal with recurrent abdominal

pain[9,10,32,36-38], headache[39-41] or chest pain[11,34,42]. Most of these studies demonstrate a frequent association between somatic symptoms and psychiatric disorders, particularly anxiety and depression.

The present study reports a high frequency of anxiety disorders (37.2%, n = 19) and depression (15.7%, n = 8) among children and adolescents with conversion disorder. These rates are higher than the community prevalence data (1.9% for children and 4.7 to 8% for adolescents)[43-46], but are similar to psychiatric population rates in children (16%) for major depression[47]. In a recent study, higher rates for mood disorders (32%) and separation anxiety (24%) were found in a sample of children and adolescents with pseudoseizures[48].

While the association between age and comorbid anxiety disorders was statistically insignificant, it was found that all of the patients with comorbid major depressive disorder were adolescents. Thus, it may be claimed that anxiety disorders are more characteristic for children and major depression for adolescents with conversion disorder.

High scores in the depression and anxiety scales and differences between the two groups on the CDI, STAI and STAIC trait scores supported the clinical findins. High scores in the control group on the STAI and STAIC state scales, which assess the anxiety in a specific setting, were interpreted as a result of being in a hospital or waiting for an examination. Therefore, it is possible to speculate that the general level of anxiety, which was measured by STAI and STAIC trait scales, could play an important role in various clinical aspects of conversion disorder.

In contrast to western samples, conversion disorder may be among the most common of psychiatric difficulties seen in developing countries, where a medical illness may be more acceptable than a mental illness in terms of seeking help[4]. An emotionally distressed patient is more likely to consult a physician with physical symptoms than to complain directly about psychological or social problems.

Comorbid depressive or anxiety disorders in conversion disorder may remain undetected since these patients often ignore or deny their feelings. The indifference to their disabilities, their immature behaviors and easily recognizable secondary gains may also hinder the empathetic understanding of the patient's problem. Moreover, similar psychodynamic factors between conversion disorder and depression, as pointed out in an early study from Turkey[49], may facilitate the comorbidity of these clinical conditions. Therefore, clinicians should screen every patient with conversion disorder for major depression and anxiety disorders for a better outcome. There is also a need for well-controlled, prospective treatment studies in this population.

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