

Psychogenic tics: clinical characteristics and prevalence

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Summary:

Aim. Clinical characteristics and the prevalence of psychogenic tics (PT) Methods. 268 consecutively examined patients aged 4 to 54 years (221 men, 47 females; 134 children, 134 adults) with tic phenotype: Gilles de la Tourette syndrome (GTS, n = 255), chronic motor tics (n = 6), chronic vocal tics (n = 1), transient tics (n = 1), tics unclassified (n = 2), PT (n = 5) were analyzed. The diagnosis of tic disorders was made on the DSM-IV-TR criteria and mental disorders by psychiatrists.

Results. PT were found in 5 patients (1.9%), aged 17 to 51 years, four men and one woman. The phenotype included vocalizations and complex movements. In none of the patients simple motor facial tics, inability to tic suppress, unchanging clinical pattern, peak severity from the beginning of the disease, lack of concern about the disease were present. The absence of premonitory urges, regression in unexpected positions, and the presence of atypical for GTS mental disorders were found in two persons. PT occurred in three persons in whom organic tics were present in childhood. Pharmacological treatment and psychotherapy were unsuccessful. In two persons spontaneous resolution occurred, in two patients the tics persist, in one person the course of PT is unknown.

Conclusions. PT are rare and may occur in patients with organic tics. The most typical features of PT are: early onset in adulthood, lack of simple motor tics, inability to tic suppress. The diagnosis is established if a few atypical symptoms for organic tics occur.

Key words: tics, psychogenic tics, Gilles de la Tourette syndrome.

Introduction

Organic tics are brief, rapid, recurrent and non-rhythmic movements (motor tics) or vocalizations (vocal tics) with variable intensity and frequency that usually appear in series. A characteristic feature of organic tics are the preceding them premonitory sensory urges such as tingling, prickling, tightness, muscle tension within the part of the body in which then in a short time tick appears. Premonitory urges are bothersome to the patient and subside as a result of the tick therefore they may be perceived as behavior performed consciously, especially by adults. Another important feature

of organic tics is the ability to temporarily suppress them, which is associated with a growing feeling of unspecified anxiety, tension and discomfort which subside as a result of tick [1, 2].

Organic tics often occur in series, though at irregular intervals. Typical is the variability in severity, number and type of tics in time, even during one day. Factors that reduce the severity of organic tics are sleep, performing activities that require concentration and motor coordination (cycling, playing a musical instrument, dancing, driving a car) and physical activities (sport). Alcohol, drugs made of hemp, fever, relax, orgasm can also reduce the severity of organic tics in some patients. Organic tics may increase under stress, emotions, excitement, fatigue, illness, talk about tics and when the patient is in solitude. The rule is lesser severity of tics at school, work, the presence of unfamiliar people and greater at home and at the presence of known people [3].

The most severe disease, in the course of which organic tics occur, is Gilles de la Tourette syndrome (GTS), in which idiopathic motor tics and vocal tics begin before 18 years of age, persist for more than 12 months and the period of complete remission does not exceed three consecutive months [4]. The disease begins in the first decade of life, usually between 5-7 years of age from the simple motor tics of the face (eyes squinting) and the head (shaking), which usually disappear after a few weeks. After some time the tics turn up again with variable severity and various locations. As the disease progresses complex motor tics involving many muscle groups appear and after 1-2 years from the onset simple vocal tics (inarticulate sounds) develop. Complex vocal tics (understandable words) occur even later and in less than half of the patients [1, 3]. In 80-90% of patients occur at least one mental disorder comorbid with tics. Most frequently attention deficit hyperactivity disorder and obsessive-compulsive disorder are diagnosed, rarely learning disorders, anxiety disorders, mood disorders, conduct disorder [5-8].

The prognosis for patients with GTS is usually good. The peak tic severity occurs between 10-12 years of age and in adolescence and early adult period tics tend to weaken [9]. In adulthood, one third of people who experienced childhood severe tics has a complete remission. In the next half of the patients tics are minimal or mild. Only a fifth of patients have more severe tics disturbing everyday life [10, 11].

Until the 60s of the last century tics were treated as psychogenic disorder having no organic substrate. Psychotherapy of patients and their families was the primary method of treatment and a reduction in symptoms after using behavioral techniques and other methods of psychotherapy was considered as confirmation of this hypothesis [12]. It was only the discovery of the role of the dopaminergic system in the etiology of tics and their effective treatment with haloperidol that resulted in including tics to organic involuntary movements [13, 14]. Psychogenic Tics (PT) are classified as symptomatic tics. Currently, they are considered disorder of low frequency. The incidence of all PT among all psychogenic movement disorders (PMD) is estimated to be from 0% to 8% [15-19], in patients with involuntary movements and other movement disorders

0.16% [18] and in patients with symptomatic tics on 10.3% [20]. There is no data on how often can occur the PT in patients with tics of various etiologies.

Aim

The aim of the work was clinical characteristics and assessment of the prevalence of psychogenic tics in group of patients with tics of various etiology.

Material

268 consecutively examined in the years 1998-2012 patients aged 4 to 54 years with clinical phenotype of tics: Gilles de la Tourette syndrome (GTS, $n = 255$), chronic motor tics ($n = 6$), chronic vocal tics ($n = 1$), transient tics ($n = 1$), unclassified tics ($n = 2$), psychogenic tics ($n = 5$) were analyzed. Patients with symptomatic tics could be included in the study, however, such a diagnosis has not been found in any of the patients (with the exception of psychogenic etiology). In the studied group of 268 patients with tics 221 people were males (82.5%), 47 females, 134 (50%) children, and 134 adults ≥ 18 years.

Methods

The study was performed in Department of Neurology, Medical University of Warsaw. The patients were referred to Outpatient Movement Disorder Clinic by neurologists or psychiatrists to make a diagnosis and tic treatment. All patients were examined by the author of the work (PJ). Diagnosis of PT was established by neurologist, experienced in movement disorders, on the basis of medical history and physical examination. The diagnosis of GTS was made on the DSM-IV-TR criteria [4] The diagnosis of mental disorders was made on the basis of examination performed by psychiatrists and discharge charts from psychiatric wards where the patients had been diagnosed and treated. The authors did not verify neither the diagnosis of particular mental disorder nor diagnostic criteria used by psychiatrists to make a diagnosis. In addition the authors reviewed retrospectively ambulatory cards of TP patients to obtain demographic and clinical data. The clinical course of PT was determined on the basis of information obtained in the course of a telephone conversation with patients and their parents or spouses.

Results

In the studied group of 268 patients with tics, PT was found in 5 patients (1.9%), four men and one woman. In three persons the onset of PT occurred in adulthood (two men, one woman), in two other people the onset was placed in adolescence. The age of onset of PT ranged from 17 to 51 years (mean: 34.0 ± 16.6). Delay in diagnosis

ranged from 2 to 5 years in four patients. Only one patient was diagnosed shortly after the occurrence of the disorder.

PT phenotype is shown in Table 1. All patients presented inability to temporarily suppress PT, unchanging clinical pattern, the absence of simple motor tics of the face and neck at the time of the PT, sudden onset, very large and maximum severity from the onset, lack of concern about the illness as well as unusual for organic tics and GTS features: diminishing in unexpected situations, attacks of deep breathing, parkinsonism, lasting a few days mutism. Premonitory urges occurred in three patients (all with a positive history of tics in childhood) and were absent in the other two patients in whom organic tics never occurred.

Table 1 The clinical phenotype of psychogenic tics

Patient	Clinical phenotype		
	Vocalisations		Complex movements
	Meaningless sounds	Linguistically meaningful utterances	
1	Piercingly loud, short scream, munching, blowing, hooting	Coprolalia, palilalia, echolalia	lifting the upper limb clenched into a fist, hitting hand on the forehead, snapping mouth, kicking, ejecting tongue, cheeks inflation
2	Deep throaty sound, stuttering	–	–
3	Piercingly loud, short scream	–	throwing of the head to the back, bouncing
4	–	–	hitting hand in the chest, bending the body in an arc, violent jerking of the whole body, stiffening of the body causing inability to move
5	Deep throaty sound	Coprolalia	throwing of the head to the back, strong tension of the whole body combined with tightening of the eyelids, hands, apnea and facial redness

Two patients were diagnosed with GTS in childhood, one patient experienced tics in childhood, the kind and duration of which was not possible to be determined. Family history of tics was positive in all three patients. In two other adults family history of tics in childhood was negative. In four patients comorbid mental disorders were diagnosed (Table 2).

Table 2 Clinical characteristics of patients with psychogenic tics.

Patient	Age, gender	Clinical phenotype	Family history	Tics in childhood	Premonitory sensation urges	Other features	Mental disorders	Treatment	Delay in diagnosis	Course
1	51, M	Vocalizations, complex motor activities	-	No	No	Resolving of PT in laying position	Paranoid syndrome	Haloperidol, sulpiride, risperidone, levomepromazine, clozapine, tiapride, thionidazine, pimozide, olanzapine, flupentixol, clonazepam; psychotherapy	5 years	Variable severity, symptoms persist 11 years
2	49, F	Vocalizations	-	No	No	Attacks of hyperventilation	Histrionic personality disorder, behavioral and emotional problems, mental retardation, conversion disorder	Tiapride; psychotherapy	5 years	Variable severity, complete remission after 6 years
3	36, M	Vocalizations, bouncing	Tics	Tics unspecified	Yes	Parkinsonism	Recurrent depressive syndrome	Haloperidol, risperidone, levomepromazine, quetiapine, chlorpromazine, clonazepam, clorazepate, lorazepam, clonidine,	2 years	Variable severity, symptoms persist 4 years
4	17, M	Bending of the body in an arc, stiffening and jerking of the body	GTS	GTS	Yes	Mutism	-	Haloperidol, tiapride, pimozide, clozapine, clonazepam, clonidine, pharmacological coma; psychotherapy	4 years	Paroxysmal; complete remission after 5 years
5	17, M	Vocalizations, body tensioning	Tics	GTS	Yes	Resolving of PT while smoking	ADHD, OCD, self-mutilations	Haloperidol, risperidone, psychotherapy	5 days	Unknown

In all the patients organic tics were diagnosed initially and intensive symptomatic treatment with neuroleptics, benzodiazepines, and clonidine was introduced (Table 2). In patient 4 six times over four years pharmacological coma combined with artificial ventilation was applied. Psychotherapy consisting of occupational therapy, individual and group, was used in four patients. In three patients it proved to be ineffective (patient 1, 2 and 4), in one subject its effect has not been established (patient 5). Patient 4, in whom there was spontaneous withdrawal of PT, ceased psychotherapy two years before resolution of the disorder recognizing it as ineffective. Patient 3 did not consent to psychotherapy.

The course of PT, in three patients consisted of varying severity of symptoms, without periods of complete remission. The follow up period in these patients have been 4, 6 and 11 years. In one patient the course was paroxysmal with the period of occurrence from several days to three weeks, with complete resolution of symptoms after four years of the disease. In all persons psychogenic symptoms exacerbation was associated with the occurrence of stressful situations. In one patient (patient 5), in whom the diagnosis was established in the first week of illness, the course of PT was unknown.

Discussion

One of the most certain evidence of psychogenic etiology of the observed involuntary movements is inconsistent clinical picture of with an organic movement disorder [21]. Permanent feature of organic tics is their suggestibility because almost all patients have the ability to temporarily stop them [1, 22]. This particular feature of tics distinguishes them from other involuntary movements. A consistent feature of PT in the all examined five people was the lack of voluntary control and inability to even short-term inhibition of tick. This feature of TP is similar to other PMD because most patients with these disorders have no control over any free movements [23]. Another tic feature is the presence of premonitory sensory urges. They are present in 90% of patients with GTS, especially in adolescents and adults [24]. In small children below 10 years of age premonitory urges may be absent or not realized and some organic tics of a more automatic character (e.g., eye blinking) are not preceded by them [1, 24]. The absence of preceding premonitory urges is considered to be a typical feature of PT [23, 25-27]. However, three of the five described persons reported premonitory sensory symptoms associated with PT. The probable cause is the coexistence in these patients, at different times, of organic tics (GTS were found in two, in one undefined tics in childhood) as well as the psychogenic ones and referring the premonitory sensory urges to both types of movement disorders. In these patients, organic tics always preceded PT, which occurred during the period of full remission of organic tics.

Organic tics are characterized by variability of location and severity. Resolution of one kind of tics and the appearance of tics of a different phenomenology and else-

where in the body is typical. In contrast to organic tics, a constant feature of the described PT was their unchangeability as well as fixed clinical pattern (Table 2).

The first symptoms of the GTS are usually simple motor facial tics. Motor tics generally precede the vocal, and simple tics appear earlier than complex. In two patients with a negative history of tics in childhood the onset was connected with vocalization and complex movements (patients 1 and 2) and in three other PT emerged during full remission of simple motor tics which was inconsistent with the natural course of organic tics and GTS. In adults with GTS in whom tics persist, dominate the face, neck and torso tics while the complex motor tics and vocal tics become weaker over the years [9]. In the described patients with PT dominated vocalizations and complex movements, without simple tics of the face and neck (Table 1). Description of PT clinical phenotype, including paroxysmal dyskinesia, are rare in the literature, usually refer to case reports and include vocalizations, hitting in the chest, bending the body in an arc, rhythmic movements of the trunk and limbs, ejecting tongue, jaw movements, tilting the body to the side, adoption of specific postures [25], falling into bed combined with tonic-clonic-like movements [26], attacks of shoulder movements combined with straightening and a twist of the neck [23], shaking head with complex, repetitive hand movements [27].

Phenomenology of PT in our patients was very similar. The main symptoms were loud inarticulate vocalizations and various types of complex motor activities. In two patients (1 and 3) articulate vocalizations (palilalia, echolalia, coprolalia), occurred, which together with other complex movements were one of the initial symptoms of the disease. Coprolalia is never the first sign of GTS, usually occurs around 12 years of age, although rarely (in 15% of patients) may occur only in adulthood [28]. Similarly, other complex vocal tics, such as palilalia and echolalia appear in GTS after a few years from the onset of tics.

The highest intensity of organic tics occurs during puberty, especially between 10-12 years of age, during adolescence and early adult period they are weakened [9]. Only 20% of adult patients who experienced childhood severe tics has tics of greater intensity [10, 11]. In three persons who experienced childhood organic tics, the greatest severity of the disease associated with the appearance of PT, fell on adolescence ($n = 2$) and adulthood ($n = 1$) and thus the period when a natural organic tics resolve. Extremely rare (less than 5% of patients) is a situation that organic tics are more severe in adulthood than in childhood [11]. Quite exceptionally, they appear for the first time in adults which usually is associated with a recurrence of childhood organic tics or symptomatic etiology [29]. Thus, the beginning of the illness in adulthood, the emergence of vocal tics and complex tics as the first symptom of the disease as well as the occurrence of severe tics throughout their natural disappearance that is, after the completion of puberty, should lead to a suspicion of psychogenic nature of the disorder.

The severity of PT in all the described patients was assessed as significant, impairing social functioning, which is consistent with data from the literature where

it is stressed that PT are the type of PMD with the greatest intensity, which usually cause inability to work [19]. None of the three described adult patients has worked, two high school students left school because of PT. Despite the large increase in PT none of the ill has shown concerns about the disorder or fear of the future which is a typical symptom for all PMD [18].

PMD risk factor is the ability to achieve benefits from the disease [16, 18, 21]. The potential benefit was identified in only two teenagers (patients 4 and 5), which was the opportunity to avoid learning and going to school. A characteristic feature of the PMD is their possible resolution under the influence of various stimuli such as touching certain places on the skin [16, 18, 21]. In two of the persons PT resolved in a lying position, or while smoking cigarettes (Table 2). Other features of the TP, which occurred in the described patients and that are consistent with the characteristics of the PMD include sudden onset, maximum severity of the disorder from the beginning of the disease, knowledge of a person having a similar disease (three patients with tics in childhood had a person with tics in the family), the ineffectiveness of the classic pharmacotherapy. On the other hand, some features of PMD such as self-injurious behavior, resolution on distraction, the presence of mental disorder or spontaneous remissions may have less relevance in the diagnosis of PT. Self-injurious behavior is met in up to 40% of patients with GTS [6], distraction (preoccupation with the performance of an act) usually reduces tics [1, 3]. Mental disorders occur in most patients with GTS although some of them never occur (e.g., paranoid syndrome in a patient 1) or very rare (mental retardation in a patient 2) [5-8]. Complete remissions occur in one third of adults with GTS, however after 25 years of age spontaneous remissions do not occur, and organic tics stabilize after this period [9]. Therefore unusually typical for GTS mental disorders and spontaneous remissions after 25 year of age may be considered characteristic features of PT.

It is worth noting that in three of the five patients organic tics preceded the occurrence of PT which proves that the two disorders may coexist in the same patient, although in different time periods of the occurrence of the disorder. This observation is consistent with data from the literature, in which similar descriptions of coincidence as well as the sequence of occurrence of GTS and PT can be found [23, 26, 27, 30]. Appropriate distinguishing PT from organic tics in patients with GTS allows to avoid unnecessary pharmacotherapy. In all described patients with PT numerous neuroleptic drugs and benzodiazepines were used, in one patient six times pharmacological coma was applied. On the other hand, psychotherapy used in three of four patients has also proved ineffective. The prognosis is uncertain. In two patients complete recovery after many years of the disease was observed, although the longer duration of PMD has negative prognosis as to the possibility of obtaining a significant improvement [31], in two other persons PT have remained since 4 and 11 years.

The present work confirms the data from the literature that PT is a rare disorder. The prevalence of PT in the studied Polish population was 1.9%. However, due to different therapeutic treatment the diagnosis of PT is a clinically significant problem.

The authors are aware of some important limitations of the study. Diagnosis of tic disorder was made in each patient by the author of the study based on DSM-IV-TR criteria in contrast to mental disorders that were diagnosed by different psychiatrists. We do not know neither the diagnostic criteria nor questionnaires used by them to establish the diagnosis of mental disorder.

Conclusions

1. Psychogenic tics are rare disorder that occurs in less than 2% of all patients with tics.
2. The phenomenology of psychogenic tics involves vocalizations and complex motor activities.
3. Psychogenic tics present unchanging clinical pattern and large severity which however does not cause a significant concern of the patient.
4. The onset of tics in adulthood or during natural recovery from organic tics, absence of simple facial motor tics, the total absence of free controls and the resolution in unexpected positions suggest their psychogenic etiology.
5. Psychogenic tics may occur in patients with pre-existing organic tics. In these patients, the absence of preceding premonitory urges is not a reliable symptom differentiating the two disorders.
6. The diagnosis of psychogenic tics should be based on the whole clinical picture with the presence of at least some of the symptoms atypical for organic tics.

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