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Searching for tics

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ABSTRACT

Introduction. In the current edition, Szejko and colleagues describe a subset of patients with Gilles de la Tourette syndrome (GTS) who had dystonic tics (DTs), which occurred more frequently in those with a greater number of tics and likely contribute to impairment.

Clinical reflections. DTs manifest as an abnormal posture that may be difficult to distinguish from other movements, such as dystonia and other tic types. Electromyography is an invaluable tool that can aid clinicians in making this important distinction.

Clinical implications. Accurately diagnosing these movements can significantly impact treatment decisions and contribute to more homogenous research populations.

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Gilles de la Tourette syndrome (GTS) is diagnosed in individuals who have two or more motor tics and at least one phonic tic for at least one year's duration beginning before age 18 [1]. Patients with GTS often have comorbid psychiatric problems that, coupled with tics, can lead to substantial impairment. Research has sought to characterize the phenotypic variability among those with GTS in order to better understand disease mechanisms and identify elements that have the greatest impact on quality of life. Accomplishing these goals will allow clinicians to more effectively tailor treatment to an individual's specific needs. Szejko *et al.* have nicely contributed to this effort and found that 73.9% of patients with GTS developed dystonic tics (DTs) [2]. They also provided a thorough characterization of their cohort of 153 patients with DTs. Their attention to detail highlights the importance of accurately differentiating tics from other movement phenomena, taking an account of one's complete tic repertoire, and correctly identifying types of tics, all of which can have a significant impact on treatment.

Tics are stereotypical movements sometimes described as semivoluntary or unvoluntary to highlight that they are not truly involuntary [3] unlike some other movement phenomena, such as dystonia, which is an involuntary sustained or intermittent co-contraction of muscle agonist and antagonists resulting in abnormal movements and/or postures [4]. Simple tics often have a jerk-like appearance and may be differentiated from other jerking movements by their serotyped nature and other attributes, including a premonitory urge that resolves when the tic is completed. Szejko et al. provide a nice table summarizing characteristics to aid in differentiating tics from dystonia [2]; however, there are limitations to an approach based solely on clinical history and observation as illustrated by the fact that 90% of adults and only 37% of children endorse a hallmark premonitory urge [5, 6]. Moreover, simple motor tics may be misidentified as myoclonus thus leading the clinician to misdiagnosis. EMG is a useful technique that can aid in differentiation among these [7] and should be considered an integral extension of the neurological examination. Measuring burst duration enables one to categorize tics as clonic (< 100ms) or dystonic (> 300ms) [8]. This is a distinction that may escape the sensitivity of clinical observation and only consistently accomplished with EMG.

Clinicians should be aware that individuals with GTS may have hyperkinetic movements in addition to tics, such as tardive chorea or tardive dystonia [9]. Accurately identifying these movements, which may mimic tics, can have a significant impact on treatment decisions, such as whether to increase or decrease the dosage of a dopamine antagonist like aripirazole, which is commonly used to treat tics [10]. The wrong decision could have serious and potentially irreversible consequences given the association between these medications and extrapyramidal side effects. Once an accurate and specific diagnosis of tics is established, appropriate treatments can be pursued. The American

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Academy of Neurology recently published new guidelines for the treatment of tic disorders [11]. Comprehensive Behavioral Intervention for Tics (CBIT) is the mainstay of the nonpharmacological treatment arm while pharmacological options include α-adrenergic agonists, antipsychotics, vesicular monoamine transporter-2 inhibitors, and botulinum toxin injections, the last of which has particular applicability to those with dystonic tics [12]. Botulinum toxin may also be used to treat laryngeal tics [13] and has even been shown to reduce the premonitory urge [14].

To effectively treat their patients, clinicians must compile a patient's tic inventory and determine their impact on one's life. This can be accomplished with various rating scales, such as the Yale Global Tic Severity Scale (YGTSS) [15, 16]. Szejko and colleagues made several interesting observations including the average age of onset of DTs 3.7 years after development of their first tic suggesting that most individuals do not present with DTs [2]. They also showed that the presence of DTs was more common in those with more tics overall. Previous reports have shown co-occurance of tics and dystonia [17] as well as cosegregation of eye-winking tics, frequent eye-blinking and blepharosm with a family [18, 19], raising the question of a shared mechanism. This idea has since been strengthened by identification of a shared mutation within the guanosine triphosphate cyclohydrolase I gene (*GCHI*) in a Danish family with dopa-responsive dystonia and GTS [20].

While the first step in evaluating movement disorders is accurately identifying the movement phenomenon, clinicians must be aware that not all phenomena are 'pure,' i.e. tremor or tics, but can have characteristics of multiple movement phenomena simultaneously, e.g. DTs. Differentiating tics from dystonia as well as correctly identifying the type of tic is necessary for clinicians to provide appropriate treatment options, properly counsel their patients, and to better homogenize patient populations so that higher quality research studies may be conducted.

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Abbreviations

GTS — Gilles de la Tourette syndrome
DTs — Dystonic tics
Cts — Clonic tics
CBIT — Comprehensive Behavioral Intervention for Tics
YGTSS — Yale Global Tic Severity Scale

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