



Tic Disorders in Children with Autism Spectrum Disorder

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ABSTRACT

Autistic spectrum disorders are a group of neurodevelopmental disorders characterized by difficulties in eye contact, social interaction and various behavior patterns which are repetitive and stereotypical. The aim of the present study was to study the characteristics of a population of subjects with autism spectrum disorders and tic disorders (n = 96).

The Yale Global Tic Severity Scale (YGTSS) was administered to parents who would rate their children in this area. 47 (48.96%) subjects had chronic motor tics while 21 (21.88%) had vocal tics and 11 (11.46%) had features suggestive of Tourette's syndrome. This is a very simple clinical exploratory study and further large scale prospective studies to address the relationship between tic disorders and autism spectrum disorders are needed.

KEYWORDS : autism, autism spectrum disorders, tics, motor tics, vocal tics, Tourette syndrome, tic disorders

INTRODUCTION

Autism spectrum disorders are a group of neurodevelopmental disorders also termed as the pervasive developmental disorders where there is deficiency in social skills, decreased eye contact and behavioral problems that may be visible. Sensory integration problems and visual gaze issues may cloud the problem further with repetitive hand movements and stereotypies [1]. The prevalence of autism spectrum disorders is rising worldwide and is now reaching 1 in 100 children [2]. Stereotyped movements and repetitive behaviors are common in children with autism spectrum disorders [3]. These movements are closely related to tics and have a neurobiology linked to dopamine systems in the cortex and subcortical structures [4]. They have been linked to the spectrum of obsessive compulsive spectrum disorders as a part of the motor component of repetitive behavior [5]. A number of researchers have noted the occurrence of tics and related phenomena in autism spectrum disorder which includes chronic motor tics, vocal tics and Tourette's Disorders (TD) or TD like symptoms [6]. The association is based on some common factors like probable common etiologies, shared neurobiology and shared neuroanatomical substrate as well as neurocircuitry [7]. Tic disorders and autism spectrum disorders share common symptomatology like echolalia, palilalia, obsessive compulsive symptoms, hyperactivity, attention deficits, disinhibition and poor impulse control [8]. Tics may initially appear as actual tics but may progress to stereotypies in children with autism spectrum disorders [9]. Tourette Disorder (TD) or TD like symptoms seen in autism spectrum disorders are characterized by the occurrence of chronic multiple motor and vocal tics and a fluctuating longitudinal course. Repetitive grunting sounds, vocal sounds and verbalization may also be seen [10]. Neurobiological changes in the basal ganglia and prefrontal cortex have been observed in the disorder with the dopamine and serotonin systems being implicated yet the complete neurobiological underpinnings remains elusive [11]. It is important to study these phenomenological components in greater details to understand the implications of these symptoms in the autism spectrum. The aim of the study was to elucidate the clinical characteristics of children and adolescents with autism spectrum disorders and tic disorders and/or TD.

METHODOLOGY

The clinical group for the study consisted of 96 children and adolescents diagnosed with autism spectrum disorder and having tics or tic disorder or TD / TD like symptoms and visiting as out-patients to a private child psychiatric centre in Mumbai. All the participants were evaluated clinically and observed during free play. Diagnosis of all the disorders was made as per the DSM-IV TR criteria [12] and structured interview sessions with the parents were conducted as well. The details and presence of motor or vocal tics / tic disorders and TD / TD like symptoms were recorded. The Yale Global Tic Severity Scale (YGTSS), a

semi structured clinical interview of tics phenomenology with range of scores from 0-100% was also administered [13]. The scale was administered with the assistance of parents due to poor participation from many children and adolescents having autism spectrum disorders. Informed consent was taken from all parents after explaining the details of the study. The study was approved in a departmental review meeting. All the children were assessed when they were drug naïve (not being on medication in the last 2 weeks). No child was withdrawn off medication for the study. All children were started on medication once assessment for the study was completed. The children were intellectually assessed using the Vineland Adaptive Behavior Scales [14]. The sample was further divided into two groups based on the developmental quotient (DQ) scores. One group was children with DQ < 20 and the other was with DQ ≥ 20. The two groups were statistically analyzed and the results were presented.

RESULTS

Out of the total sample of 96 children and adolescents with autism spectrum disorders, 77 (80.21%) were males. The mean age of the group was 11.9 ± 5.4 years. The mean YGTSS score of the group was 39.7 ± 9.1 . Out of the 96 subjects, 29 had a DQ score of below 20 (30.21%) while 67 had a score above 20 (69.8%). A positive family history for tic disorders was detected in 28 subjects (29.17%). Among the 96 subjects with autism spectrum disorders, 47 (48.96%) subjects had chronic motor tics while 21 (21.88%) had vocal tics and 11 (11.46%) had features suggestive of Tourette's syndrome (TD). A family history of tic disorders was found in 8 cases where the children had a diagnosis of TD. There was a significant difference between the YGTSS scores between the groups with a DQ below 20 and DQ above 20 (Table 1).

DISCUSSION

The number of children with TD in the study was 11.46%. Studies carried out in autism special schools and population studies have reported a rate of 4-9% in the association between autism spectrum disorders and TD [15]. The selective choice of these subjects in the study probably qualifies as a reason for high rates reported here. School population studies have reported much lower rates of TD in normal school based children than that seen amongst those with autism spectrum disorders [16]. The YGTSS scores are in the mild to moderate indicating that tics in autism spectrum disorders are probably of lesser severity than that seen with the presence of tic disorders alone. The use of parental perceptions and judgment may be a limiting factor in this case. The study has many limitations. The selected population being focal in nature limits the generalization of our findings and greater exploration may be needed in areas like phenomenology and genetic basis. This is one of the few studies that explore the nature of tic disorders and TD in group solely with autism

spectrum disorders in India. However large scale prospective studies are needed to address this issue further.

TABLE 1 – YGTSS SCORES IN BOTH THE DQ GROUPS

GROUP 1 (DQ < 20) (n = 29)	GROUP 2 (DQ ≥ 20) (n = 67)	t value	p value
48.2 ± 9.44	31.9 ± 8.86	8.1148	0.0001*

*significant (Independent sample t test used)

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