

Comment on: Tics in the Pediatric Population: Pragmatic Management

Valeria Neri, MD, Paola Rosaria Silvestri, MD, Francesco Cardona, MD*

We read the recent review by Ganos et al.,¹ who gave an accurate description of the practical management required to address the needs of children with Tourette syndrome (TS). The review highlights the importance of a holistic approach and of a multidisciplinary team to assess and manage the complexity of TS and its comorbid disorders. We would like to underline another clinical variable of patients with TS: learning disabilities may occur frequently in these children, and they may contribute to worsening the global functioning of these patients.

Few studies have examined the relationship between TS, cognitive profiles, and learning disabilities in detail.^{2–5} High rates of learning disabilities have been reported in children with TS, mainly in those with attention-deficit/hyperactivity disorder, although no specific pattern was found.

This contribution stems from observations and analyses of problems and difficulties detected in a sample of 60 children and adolescents ages 3 to 12 years with TS or chronic tic disorder who were enrolled on multicenter research trials. Those studies focused on analyzing the role of Group A β -hemolytic *Streptococcus* infections in association with possible genetic susceptibility and immunological factors in the pathogenesis of TS and obsessive-compulsive symptoms (the European Multicenter Tics in Children Studies).

During follow-up, 18 of 60 families pointed out that their children had problems at school. The difficulties cited were caused by delays in the development of learning skills in 13 children and by short attention spans and/or hyperactivity in 5 children. In 2 children, teaching staff had requested counseling because they were unable to deal with students who had tic disorders and with the problems related to them. Characteristics of this subgroup are illustrated in Table 1.^{6–15}

To detect specific problems in every child and to meet with the requests of families and schools, we also assessed academic and neuropsychological characteristics, strengths, and weaknesses. Upon observation, children exhibited mild to moderate tic symptoms. Their mean Yale Global Tic Severity Scale score was 12.5 (range, 0–29). None of these children were receiving medication for the treatment of tics.

Fifteen of 18 evaluated children received a diagnosis of 1 or more additional disorders. Learning disabilities were identified in 9 children (see Table 1). Although almost every child was referred because of tics, many were advised to undergo a rehabilitating treatment for causes different from tics; in other children, appropriate educational interventions were recommended.

Our observations confirm that neuropsychological functioning is a main component in understanding the neurobehavioral outline of TS. Children with learning disabilities and/or specific academic weaknesses can rely on several educational interventions and accommodations, and these also can be effective in children with tics. Consequently, assessments of neuropsychological functioning and academic achievement should always be taken into consideration in the evaluation of children with TS—even those with mild symptoms and without comorbidities—in order to implement educational interventions and prevent school failure and dropout.

Author Roles

1. Research Project: A. Conception, B. Organization, C. Execution; 2. Statistical Analysis: A. Design, B. Execution, C. Review and Critique; 3. Manuscript Preparation: A. Writing the First Draft, B. Review and Critique.

V.N.: 1A, 1C, 2A, 3A

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Department of Pediatrics and Child Neuropsychiatry, Sapienza University of Rome, Rome, Italy

*Correspondence to: Dr. Francesco Cardona, Department of Pediatrics and Child Neuropsychiatry, Sapienza University of Rome, Via dei Sabelli, 108-00165 Rome, Italy; francesco.cardona@uniroma1.it

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TABLE 1 Patient Characteristics

Age, y	Sex	Comorbidity at Enrollment	Additional Diagnosis ^a	Further Intervention Prescribed
9	Male	None	Depression	Psychotherapy
10	Male	None	ADD + dysgraphia	Educational interventions
12	Male	None	Dyscalculia	Educational interventions
9	Female	Compulsive symptoms	None	Psychotherapy
9	Male	None	Spelling disorder + dysgraphia	Rehabilitation + educational interventions
9	Male	None	Reading disorder + spelling disorder	Rehabilitation + educational interventions
8	Female	None	Dyscalculia	Rehabilitation + educational interventions
7	Male	None	Dysgraphia	Educational interventions
8	Female	None	ADD + anxiety symptoms	Educational interventions
11	Female	None	None	Educational interventions
12	Male	None	Mathematics disorder + reading disorder	Educational interventions
6	Male	None	ADD	Rehabilitation
13	Male	None	Mathematics disorder + reading disorder	Educational interventions
12	Male	None	ADD + anxiety symptoms	Teachers' counseling + educational interventions
7	Male	None	DCD	Educational interventions
9	Male	Anxiety	Dysgraphia	Rehabilitation
11	Female	None	None	None
6	Male	None	ADHD + DCD	Rehabilitation + educational interventions

^aThe tests administered for the assessment included the Child Behavior Checklist (Achenbach and Rescorla, 2001⁶); the Multidimensional Anxiety Scale for Children (March et al., 1997⁷); the Children's Depression Inventory (Kovacs, 1985⁸); Prove di Lettura MT (Cornoldi and Colpo, 2011⁹); Test di valutazione delle abilità di calcolo e soluzione dei problemi (Cornoldi et al., 2012¹⁰); Batteria italiana per l'ADHD (Marzocchi et al., 2010¹¹); Conners Rating Scales-Revised (Conners, 1998¹²); Scala sintetica per la valutazione della scrittura in età evolutiva (Di Brina and Rossini, 2011¹³); Batteria per la valutazione della dislessia e della disortografia evolutiva (Sartori et al., 2007¹⁴); and the Developmental Test of Visual-Motor Integration (Beery and Buktenica, 1997¹⁵).

ADD, attention-deficit disorder; ADHD, attention-deficit/hyperactivity disorder; DCD, developmental coordination disorder.

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