

Quantitative Neurobehavioral Examination Features of Children and Adults with Tourette Syndrome

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The quantitative neurological examination is aimed at defining subtle but potentially important motor system examination features which may reflect otherwise undetected motor system dysfunction. This report is on a retrospective chart analysis of 35 patients seen between January 1989 and December 1998 who met criteria for Tourette syndrome (27 male; 7 related to each other: Mother and two sons; father and son; father and son). Mean age at assessment 17.8 years (range 4.6-52.7). Mean age of tic onset 8 years +/- 3.75. Family history of first degree relative Tourette syndrome, 29%. Family history first degree relative obsessive-compulsive disorder, 43%. Family history first degree relative tic disorder 43%. Based on MMPI/Yale-Brown Obsessive-Compulsive Rating Scale, comorbid OCD in 19 (54%); DSM-IV Achenbach Child Behavior Checklist criteria for ADD in 9 (26%); in-house criteria nonverbal learning disorder 5 (14%). Eye color: 69% light (blue, green, grey, hazel). Laterality quotient: > +75 (57%), < +75 (34%), > -75 (3%), < -75 (6%). Fifty percent lateralized right eye/right foot; 20% lateralized left eye/right foot; 13% ambi-eyed/right footed; 9% lateralized right eye/ambi-footed; 3% each left/left, ambi/left, ambi-eye/footed. At examination, simple motor tics: Eyes 71%; face 80%; simple phonic tics 63%. Writing wrist posture: Non-inverted 62%; partially inverted 25%; fully inverted 13%. Writing hand posture: Tight 34%, modified grasp 25%, normal tripod 25%, distal 13%, full grasp 3%. Normal one-legged balance 66%; reduced balance right leg 14%; reduced balance left leg 11%; reduced balance bilaterally 9%. Dystonic posturing right hand 3%; left hand 11%. Postural chorea right hand 34%; left hand 37%. Bilaterally slowed timed alternate motion rate in hands 6%; right hand 14%; left hand 34%; slowed timed alternate motion rate both lower extremities 6%; right foot 23%; left foot 31%.

These studies suggest that most patients with Tourette syndrome demonstrate no additional motor system dysfunction other than simple motor or simple phonic tics, but a significant percentage approximating one in three demonstrates signs suggestive of right hemispheric motor system dysfunction. This may represent lateralization correlating with attention mechanisms or related to other comorbid diagnoses and/or neuropsychological test patterns. These potential associations are under current investigation.