Genetic and phenotypic overlap of specific obsessive-compulsive and attention-deficit/hyperactive subtypes with Tourette syndrome.


Abstract

BACKGROUND:
The unique phenotypic and genetic aspects of obsessive-compulsive (OCD) and attention-deficit/hyperactivity disorder (ADHD) among individuals with Tourette syndrome (TS) are not well characterized. Here, we examine symptom patterns and heritability of OCD and ADHD in TS families.

METHOD:
OCD and ADHD symptom patterns were examined in TS patients and their family members (N = 3494) using exploratory factor analyses (EFA) for OCD and ADHD symptoms separately, followed by latent class analyses (LCA) of the resulting OCD and ADHD factor sum scores jointly; heritability and clinical relevance of the resulting factors and classes were assessed.

RESULTS:
EFA yielded a 2-factor model for ADHD and an 8-factor model for OCD. Both ADHD factors (inattentive and hyperactive/impulsive symptoms) were genetically related to TS, ADHD, and OCD. The doubts, contamination, need for sameness, and superstitions factors were genetically related to OCD, but not ADHD or TS; symmetry/exactness and fear-of-harm were associated with TS and OCD while hoarding was associated with ADHD and OCD. In contrast, aggressive urges were genetically associated with TS, OCD, and ADHD. LCA revealed a three-class solution: few OCD/ADHD symptoms (LC1), OCD & ADHD symptoms (LC2), and symmetry/exactness, hoarding, and ADHD symptoms (LC3). LC2 had the highest psychiatric comorbidity rates (≥50% for all disorders).

CONCLUSIONS:
Symmetry/exactness, aggressive urges, fear-of-harm, and hoarding show complex genetic relationships with TS, OCD, and ADHD, and, rather than being specific subtypes of OCD, transcend traditional diagnostic boundaries, perhaps representing an underlying vulnerability (e.g. failure of top-down cognitive control) common to all three disorders.