Familiality of co-existing ADHD and tic disorders: evidence from a large sibling study

Veit Roessner, Tobias Banaschewski, Andreas Becker, Judith Buse, Sina Wanderer, Jan Buitelaar, Joseph A. Sergeant, Edmund Sonuga-Barke, Michael Gill, Iris Manor, Ana Miranda, Fernando Mulas, Robert Oades, Herbert Roeyers, Hans-Christoph Steinhausen, Steven F. Faraone, Philip Asherson, Aribert Rothenberger


Abstract

Background:
The association of attention-deficit/hyperactivity disorder (ADHD) and tic disorder (TD) is frequent and clinically important. Very few and inconclusive attempts have been made to clarify if and how the combination of ADHD+TD runs in families.

Aim:
To determine the first time in a large-scale ADHD sample whether ADHD+TD increases the risk of ADHD+TD in siblings and, also the first time, if this is independent of their psychopathological vulnerability in general.

Methods:
The study is based on the International Multicenter ADHD Genetics (IMAGE) study. The present sub-sample of 2815 individuals included ADHD-index patients with co-existing TD (ADHD+TD, n=262) and without TD (ADHD-TD, n=947) as well as their 1606 full siblings (n=358 of the ADHD+TD index patients and n=1248 of the ADHD-TD index patients). We assessed psychopathological symptoms in index patients and siblings by using the strength and difficulties questionnaire (SDQ) and the parent and teacher Conners’ long version Rating Scales (CRS). For disorder classification the Parental Account of Childhood Symptoms (PACS-Interview) was applied in n = 271 children. Odds ratio with the GENMOD procedure (PROCGENMOD) was used to test if the risk for ADHD, TD and ADHD+TD in siblings was associated with the related index patients’ diagnoses. In order to get an estimate for specificity we compared the four groups for general psychopathological symptoms.

Results:
Co-existing ADHD+TD in index patients increased the risk of both comorbid ADHD+TD and TD in the siblings of these index patients. These effects did not extend to general psychopathology.

Interpretation:
Co-existence of ADHD+TD may segregate in families. The same holds true for TD (without ADHD). Hence, the segregation of TD (included in both groups) seems to be the determining factor, independent of further behavioral problems. This close relationship between ADHD and TD supports the clinical approach to carefully assess ADHD in any case of TD.