Tourette Syndrome Symptoms

- **repeated involuntary movements and uncontrollable vocal sounds (tics)**
  - usually begins with face (blinking, nose twitching, grimacing), then arms, then legs and/or trunk (shrugging of shoulders), and can involve entire body (stamping, kicking)
  - frequent, repetitive, quick
  - vocalizations occur in place of or at same time as involuntary movements
    - grunting
    - throat clearing
    - shouting
    - barking
    - humming
    - coprolalia (involuntary use of obscene words or socially unacceptable words and phrases) - rare
    - copropraxia (obscene gestures) - rare
    - echolalia (repetition of words of others), palilalia (repetition of own words), and repetition of other’s movements - rare
    - premonitory urges (the urge to perform a motor activity)
    - touching, as well as repetitive thoughts, movements, and compulsions

Symptoms

- usually diagnosed between ages 6-15 years (can be diagnosed as early as 2 years or as late as 20 years)
- 70% of cases stop experiencing tics by age 20
- lack of socialization with and acceptance by peers
- symptoms range from mild to severe — huge variety among individuals
- co-occurring conditions: ADHD/ADD, impulsivity, OCD
- often family history of tics and/or co-occurring conditions
- males affected 3-4 times more often than females

(Causes of Tourette’s Syndrome)

Due to the hyperkinetic symptoms displayed by patients with TS, the dominant hypothesis is that Tourette’s is caused by a disruption of excitatory/inhibitory balance.

Altered GABA Function in TS

- Post-mortem studies: altered GABAergic neuron density

**Altered GABA function in TS**

- PET study: decrease in GABA-A receptor binding in ventral striatum, thalamus, right insula, and amygdala


**Animal Models:** GABA antagonists applied to the sensorimotor striatum can produce tic like movement and repetitive behaviors


**Other Hypotheses: Altered DA function in TS**

Hypothesis: excessive DA leads to hyperkinetic symptoms of TS.

Currently conflicting evidence for this hypothesis, but studies are ongoing.


**Putting it all together: Decreased inhibition results in the production of motor tics**

Treatments

• No cure
• Medication
  – Fluphenazine, Ziprasidone, Risperidone, Perphenazine, Pimozide, Haloperidol, Aripiprazole
  • Most of these act as serotonin and/or dopamine antagonists
• Psychological therapies
  – Relaxation techniques
  – Cognitive behavioral therapy

(Mayo Clinic Staff, 2016)

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