Symptoms of Attention-Deficit Hyperactivity Disorder, Nonsyndromic Orofacial Cleft Children, and Dopamine Polymorphisms: A Pilot Study.

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Abstract
PURPOSE:
Attention-deficit hyperactivity disorder (ADHD) is a common childhood neurobehavioral disorder characterized by inattention, poor impulse control, and motor restlessness. Risk factors include familial stressors, anxiety disorders, learning disabilities, abnormal brain development, heritability, and dopamine polymorphisms. Children with an orofacial clefting (OFC) history are at increased risk of familial stressors, anxiety disorders, learning disabilities, and abnormal brain development. Given this overlap, we present a conceptual model proposing that children with OFC may be more likely to exhibit ADHD symptoms than children without and explore this relationship using pilot data.

DESIGN:
This cross-sectional pilot study included 29 children with OFC or a first-degree relative with OFC recruited through a cleft research registry.

METHODS:
The Disruptive Behavior Disorder Scale was used to collect data on children's ADHD symptoms. Saliva or whole blood samples were collected from children and parents for DNA analyses. ADHD-associated dopamine polymorphisms within the DRD4, DRD2, and DAT1 genes were genotyped. We tested for associations between presence of OFC and dopamine polymorphisms. Mixed-effects models tested whether children with OFC and dopamine polymorphisms had more ADHD symptoms.

RESULTS:
The DRD4 4-repeat allele was associated with increased inattentive ADHD symptoms (p = .03). Having the DRD2 Taq1A1 allele and OFC predicted fewer (p = .02) inattentive ADHD symptoms. Children with OFC were significantly less likely to have the DAT1 10-repeat allele (p = .04).

CONCLUSIONS:
Results indicate that further investigation among a larger sample of children with OFC is warranted, particularly for relationships with inattentive ADHD.