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## Treatment, Bereavement, and Trauma in Children

This section of Focus on Childhood and Adolescent Mental Health presents findings on a variety of topics including treatment trials of electroencephalographic (EEG) neurofeedback for attention-deficit/hyperactivity disorder (ADHD), aripiprazole for Tourette's disorder, and estrogen replacement for anorexia nervosa in adolescent girls; the effects of parental bereavement on offspring; and a proposed developmental trauma diagnosis for children.

Nonpharmacologic treatment options are often needed for children with ADHD who fail to respond to medication treatment or whose parents do not want medication treatment for their children. Van Dongen-Boomsma and colleagues evaluated the efficacy of EEG neurofeedback for children aged 8–15 years with ADHD. Forty-one children were randomly assigned to EEG neurofeedback or placebo neurofeedback treatment for 30 sessions, administered twice per week. During the neurofeedback sessions, the children were taught to self-regulate to increase the presence of sensorimotor rhythm or low- $\beta$  activity. The primary outcome measure was change from baseline in ADHD symptom rating on the ADHD Rating Scale IV during treatment and at study end. No significant differences were found between the EEG neurofeedback group and the placebo neurofeedback group in improvement of ADHD symptoms; both groups showed a decrease in symptoms over time. No safety concerns were found. Although the study did not support the efficacy of EEG neurofeedback in the treatment of children with ADHD, the authors suggest that future studies assess whether specific subgroups of children with ADHD may benefit from EEG neurofeedback.

Misra and colleagues, in an online-only offering, examine the effect of estrogen replacement on anxiety symptoms, eating attitudes, and body image in adolescent girls with anorexia nervosa. Seventy-two adolescents were randomly assigned to transdermal estradiol (100  $\mu$ g twice per week) with cyclic progesterone or placebo patches and pills for 18 months. The investigators hypothesized that estrogen replacement would reduce anxiety symptoms and improve eating attitudes but not affect body shape perception. Outcome measures included Spielberger's State-Trait Anxiety Inventory for Children (STAIC), the Eating Disorders Inventory-2 questionnaire, and the Body Shape Questionnaire. A significant reduction was found in STAIC-trait scores but not STAIC-state scores. There was no significant improvement in eating attitudes or body shape perception. The authors conclude that estrogen replacement in adolescent girls with anorexia nervosa improves chronic patterns of anxiety but not anxiety in a given moment or situation.

In another online-only article, Yoo et al examine the efficacy and safety of aripiprazole for 61 children and adolescents aged 6–18 years with Tourette's disorder in a 10-week double-blind placebo-controlled trial. The primary outcome measure was mean change from baseline to endpoint in the total tic score of the Yale Global Tic Severity Scale. Aripiprazole doses ranged from an initial dose of 2 mg/d to 20 mg/d, with a mean final dose of 11.0 mg/d. The aripiprazole treatment group had a significantly greater reduction in mean total tic score compared to the placebo-treated group. An effect size of 0.62 was reported. Age of the youth did not affect treatment outcome. The most common treatment-emergent adverse events in the aripiprazole group were nausea, headache, sedation, somnolence, and nasopharyngitis. No significant differences between the aripiprazole- and placebo-treated groups were found on ratings of extrapyramidal symptoms. Weight gain was significantly higher in the aripiprazole group compared to the placebo group: 1.6 kg vs 0.2 kg. The investigators conclude that there is preliminary evidence for the efficacy of aripiprazole for children and adolescents with Tourette's disorder but that these results should be replicated in large-scale controlled trials.

The effects of bereavement on offspring were examined in 2 studies that used a longitudinal population-based sample over a 5-year assessment: one study assessed alcohol and substance abuse, and one investigated body mass index (BMI). In the

study related to alcohol and substance use, by Hamdan and colleagues, 235 youth whose parents died of suicide, accident, or sudden natural death were compared to a control group of 178 nonbereaved youth for the incidence of alcohol and substance abuse. The bereaved group had higher rates of alcohol and substance abuse or dependence and earlier onset of use than the nonbereaved group. The bereaved youth were at about 2.4 times higher risk for alcohol and substance abuse or dependence than the nonbereaved offspring. Risk factors included age  $\geq 13$  years at the time of parental death, male gender, onset of disruptive behavior disorders after parental death, and more impaired functional status.

In the study related to BMI using this parentally bereaved cohort, Weinberg et al assessed BMI over a 5-year period after parental death. Compared to nonbereaved offspring, bereaved offspring were more likely to have a BMI in the obese category rather than the normal-weight category. Interestingly, caregiver depression after the death of a parent and caregiver chronic medical illness were associated with offspring obesity.

Ford and colleagues have proposed a developmental trauma disorder diagnosis to identify children who have been subjected to trauma and develop symptoms of dysregulation. They define developmental trauma disorder as having symptoms of affective, somatic, cognitive, behavioral, interpersonal, and self-identity dysregulation caused by victimization that begins

in early childhood. To evaluate developmental trauma disorder as a new diagnosis, the authors conducted a study examining the clinical utility and discriminability of the diagnosis from other psychiatric disorders. Four hundred seventy-two medical, mental health, counseling, child welfare, and education professionals completed an Internet survey. Questions related to clinical utility (usefulness for case formulation, treatment planning, and professional communication) and significance (extent of significance of symptom improvement), as well as case vignettes, were included in the Internet survey. Other questions probed the extent to which developmental trauma disorder symptoms were discriminable from symptoms of posttraumatic stress disorder and other psychiatric disorders. Developmental trauma disorder was found to have clinical utility by the survey respondents and to have some symptoms that were distinguishable from posttraumatic stress disorder criteria and the criteria of other psychiatric disorders. On the basis of these findings, the investigators recommend further research regarding developmental trauma disorder as a potential new psychiatric diagnosis in children.

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