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Learning Objectives

After reading these articles, you should be able to:

1. Evaluate the benefits and risks of off-label antipsychotic use for children and adolescents.
2. Describe current treatments for addressing irritability in children and adolescents with autism.
3. Summarize some of the current findings in the literature regarding psychiatric treatment for children and adolescents.

Exploring the Potential Neurotoxicity of Antipsychotics in Younger Populations

At Carlat, we bang the drum of caution about antipsychotic use in children and adolescents. In this article, we pair rising concerns about antipsychotic neurotoxicity with the lack of efficacy evidence for off-label usage.

Labeled use

It is important to treat psychosis. A recent review by Goff and colleagues shows better outcomes for people who receive medication sooner (Goff DC, *Am J Psychiatry* 2017;174(9):840–849). What is clearer is the efficacy of using antipsychotics to treat severe irritability in autism spectrum disorder (ASD), a central function for child psychiatrists. Studies with large numbers demonstrate excellent responses for aripiprazole and risperidone in this setting (Fallah M, *J Child Adolesc Psychopharmacol* 2019;29(3):168–180). It is

Highlights From This Issue

Concerns about possible neurotoxicity with antipsychotics, particularly at high doses, make careful use imperative.

In treating children with autism, general symptoms such as “irritability” can be misleading. Child psychiatrists need to take careful histories of challenging behaviors in children with autism to better understand what specific approaches might be helpful.

The efforts of mothers to engage their young children is a critical factor in supporting their social development, regardless of the level of developmental challenges.

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Q&A
With
the Expert

Managing Irritability in Autism Lauren Brookman-Fraze, PhD

Professor of Psychiatry, University of California, San Diego, Research Director at the Autism Discovery Institute at Rady Children's Hospital, and Associate Director of the Child and Adolescent Services Research Center

Dr. Brookman-Fraze has disclosed that she has no relevant financial or other interests in any commercial companies pertaining to this educational activity.



CCPR: Please tell us a little about the work you do.

Dr. Brookman-Fraze: Most of my research is focused on children who have mental health needs, including those on the autism spectrum. I'm focused on ensuring that children, in community services and routine care, have access to evidence-based mental health practices. The “laboratory” of much of my research is in publicly funded mental health services: outpatient or school-based services funded through Medicaid or school districts. They don't necessarily specialize in autism, but they may see a number of children on the autism spectrum for their co-occurring mental health needs.

CCPR: What are the main problems that the clinicians face with these kids?

Dr. Brookman-Fraze: ADHD, disruptive behaviors, trauma, anxiety, and depression are common conditions addressed in children's mental health services, but for the kids on the spectrum, challenging behaviors, broadly defined, are the most common reasons for the referral.

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Expert Interview

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CCPR: What kinds of challenging behaviors?

Dr. Brookman-Fraee: There could be noncompliance, physical or verbal aggression, tantrums—those are some common examples.

CCPR: Often, behavioral plans use dramatic or confusing terminology—words like “assault” and “elopement”—but when we ask about the events, they turn out to just be a touch or a walking away.

Dr. Brookman-Fraee: Yes. Language matters. We try to be concrete and as simple as possible for everybody, honing in on the specific behavior and removing the subjective interpretation of that behavior. Sometimes it's helpful to ask: “How would I know that what you're seeing is the same thing that I'm seeing?” We need to use specific, observable behaviors. Moreover, in our training package we emphasize positive terms—telling a child what to do rather than what not to do is helpful—and we use terms that are as simple as possible.

CCPR: Tell us about the training you developed to help mental health professionals understand these kinds of behaviors.

Dr. Brookman-Fraee: Over a decade ago, community mental health providers and program managers started asking for help with strategies, treatment planning, and psychotherapy adaptations for children on the autism spectrum. That led to the development of “An Individualized Mental Health Intervention for ASD” (AIM HI) (www.teamsasdstudy.org/about-aim-hi). It's a package of evidence-based strategies that are both parent mediated and child focused to reduce challenging behaviors.

CCPR: Can you talk about looking at behaviors vs diagnoses?

Dr. Brookman-Fraee: We certainly consider co-occurring psychiatric conditions in assessing challenging behaviors. For specific behaviors, such as tantrums, physical or verbal aggression, or not following instructions, there could be multiple causes underlying those challenging behaviors, and they don't line up with one specific disorder—they're multiply determined. Core autism symptoms might interact with anxiety or ADHD, all contributing to challenging behaviors. That's what led us to focus on the presenting problem vs the different diagnoses.

CCPR: How do you assess these behaviors?

Dr. Brookman-Fraee: We use a function-based approach to assess challenging behaviors in which we take into account the child's co-occurring psychiatric conditions. We teach therapists how to define the behaviors that are most interfering for a child and a family. It's tempting to interpret behavior, for instance, as oppositional. But we push therapists to clearly define what the behaviors are, such as yelling, pushing, hitting, ignoring instructions, or making rude comments. We give therapists the guideline that a behavior is something that you can see and that multiple people can recognize when the behavior is occurring. It's something that you can count or measure—so, either being able to count how often it occurs or how long a tantrum lasts. We ask: “Can we count it, and can we see it?”

CCPR: Then what?

Dr. Brookman-Fraee: Once we've identified a few behaviors that are interfering, we use a functional behavior assessment approach teaching therapists to interview parents thoroughly about specific occurrences of identified behaviors. We ask, “Which of the behaviors occurred?” “Where did it occur (which setting or context, eg, a social interaction, a daily routine)?” “What immediately preceded the behavior—was the child given an instruction? Was the child told ‘no’?” And then, “What was the immediate outcome of the behavior—how did others respond to it? Did the parents engage in a lengthy discussion with the child about the behavior, delaying action on the child's request?”

CCPR: That's a lot of detail.

Dr. Brookman-Fraee: It's important. After gathering information about a number of occurrences of challenging behaviors, therapists collaborate with parents and families to develop a hypothesis about the functions that the behaviors serve. We ask: “What is the most common outcome of a behavior?” These include avoiding things like a demand, an interaction, or sensory input. Or the child might be seeking to obtain something such as attention or engagement, access to a desired activity, or sensory input. Then we consider the co-occurring symptoms. For example, if a child seems to display symptoms of anxiety, we might expect to see that challenging behaviors are often for the purpose of avoiding an anxiety-provoking or fearful situation.

CCPR: How do you use these hypotheses?

Dr. Brookman-Fraee: Once we have informed guesses on the common contexts and purposes of behavior, we develop a plan to

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This CME/CE activity is intended for psychiatrists, psychiatric nurses, psychologists, and other health care professionals with an interest in the diagnosis and treatment of psychiatric disorders.

Mailing Information

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Expert Interview

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reduce behaviors. Multiple types of behaviors can serve the same purpose, so we develop a plan for the most common purposes and settings. That usually involves identifying skills that, if learned, would reduce the need for the child to engage in challenging behaviors.

CCPR: What sorts of skills?

Dr. Brookman-Fraze: They may be skills related to emotion regulation and tolerance of feared situations or unexpected events. They could be related to social interaction, so the child is less likely to avoid social interactions or engage in challenging behaviors in order to avoid them. They might be organizational skills or independence skills related to managing daily routines. We emphasize that skills are linked to the patterns of challenging behaviors. There are lots of skills that we can teach any child, but we want therapists to focus on those that are related to challenging behaviors.

CCPR: You have a catalog of skills, but you have to fit them to what's going on.

Dr. Brookman-Fraze: Right. We don't have a pre-planned curriculum, such as for social skills. It's individually determined. We also identify complementary strategies that a parent or other caregiver can use to help to support the child using positive new skills or new behaviors, and to help prevent the occurrence of challenging behaviors. These may include simple strategies like modifying the environment so that it's more predictable for a child, such as using routine charts, schedules, and providing warnings for transition between activities. We also identify strategies that a parent or caregiver could use to promote the child's use of new skills, such as prompting or reminding a child to use a new strategy. We might teach a parent to say: "I see that you're starting to get a little frustrated. You can ask for help." When children are learning new skills that aren't yet natural or automatic for them, we encourage parents to use rewards. But our overall approach is to focus on positive ways to prevent challenging behaviors and promote new skills for parents and children.

CCPR: I worry that when parents get a child to comply under duress, it inhibits the child's ability to develop an internal compass. Could you speak to that sort of conundrum?

Dr. Brookman-Fraze: Yes. There are lots of things that kids need to do in their daily life—at home, after school, homework, routines. We really emphasize proactive approaches, before kids get upset, to help them to follow through on what they need to do. Routine charts and helpful warnings happen before a child is upset. Once children are upset, it's harder for them to engage in anything challenging or non-preferred. We try to prevent that and help parents to help their child regulate and anticipate when instructions will be provided.

CCPR: Some kids seem to be waiting for it. They're easily triggered by anything the parent says. How do you deal with these reactive, overlearned responses?

Dr. Brookman-Fraze: We focus on prevention, co-creating plans with kids as much as possible. Challenging behaviors often occur in transitions to non-preferred activities, so we encourage parents to provide warnings, stay calm, use brief and specific instructions, and help their child succeed. We find that adding a motivating activity after complying or following directions can help. But the goal is prevention and setting up for success, so that we don't need to focus on reactive strategies when a child is already activated.

CCPR: Sometimes kids become dependent on external rewards. How do you fade external prompts and support the development of internal self-confidence?

Dr. Brookman-Fraze: I think there are two things. Prompting and rewards are short term, setting up successful experiences and practicing new behaviors. But we want it to become more natural, so we start fading prompts and fading rewards, or transitioning rewards from something delivered by a parent to something self-delivered and managed by the child. The child gets to ask: "Did I do the new skill?" and if so, self-delivers a reward. This moves the control from external to internal through prompt fading, reward fading, and self-management. And those strategies can help children to generalize the skills that they're learning.

CCPR: Got an example?

Dr. Brookman-Fraze: Families and therapists often use token economies. For example, if the child transitions from one activity to the next in a certain period of time or without argument, then the parent gives the child a sticker. After the child earns 4 stickers, the parent allows the child to have extra time on a video game or some preferred activity. Moving to self-management, the child would determine whether the desired behavior occurred and self-provide the sticker and the reward. As the behaviors become more natural, then things like reward systems aren't needed anymore.

CCPR: Tell us more about the reasons for challenging behaviors—beyond avoiding situations, wanting things, self-stimulation, or attention-seeking. What is underlying these behaviors? Are there other dynamics or stresses involved? How do you incorporate a deeper understanding of a child's motivations?

Dr. Brookman-Fraze: There may be many factors underlying challenging behaviors and the external functions that serve them, such as co-occurring conditions, challenges with information or social processing, or

“Language matters. The AIM HI (An Individualized Mental Health Intervention for ASD) emphasizes positive terms—telling a child what to do rather than what not to do—honing in on the specific behavior, removing subjective interpretation, and using terms that are as simple and concrete as possible.”

Lauren Brookman-Fraze, PhD

Exploring the Potential Neurotoxicity of Antipsychotics in Younger Populations

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difficult to imagine effective management of both schizophrenia and severe autism without antipsychotics.

Efficacy vs risk in off-label use

The importance of labeled use of antipsychotics is clear, yet a recent review of medical records estimated that 65% of antipsychotic prescriptions for children ages 4–18 were for off-label use (Sohn M et al, *Medicine* (Baltimore) 2016;95(23):e3784). Most off-label antipsychotic medication prescriptions are intended to treat ADHD and behavioral or emotional disturbances not otherwise classified. Evidence for their efficacy in these circumstances is sparse, however. Recent studies show a lack of efficacy for antipsychotics when treating ADHD. A 2017 systematic review and meta-analysis concluded that the best evidence for ADHD treatment is behavioral therapy, stimulants, or a combination of the two (Catalá-López F et al, *PLoS One* 2017;12(7):e0180355).

Treating aggression in children and teens, the most common target when prescribing off-label antipsychotics, is complex at best. Looking specifically at reducing aggression in children with conduct disorder or oppositional defiant disorder with or without ADHD, another meta-analysis found some positive effects for risperidone, but not for haloperidol or quetiapine (Pringsheim T et al, *Can J Psychiatry* 2015;60(2):52–61).

High vs low dosage

In residential settings, children requiring frequent seclusion and restraint are often prescribed high doses of antipsychotic medications. However, in a year-long study, higher dosage and frequency of antipsychotic prescriptions didn't reduce the need for seclusion and restraint in the most ill children (Miller L et al, *J Behav Health Serv Res* 2013;40(1):97–110). There is also new evidence that high-dose antipsychotics are linked to a nearly 80% increased risk of death in children and adolescents (Ray WA et al, *JAMA Psychiatry* 2019;76(2):162–171). (*Editor's note: For a more detailed discussion on high-dose antipsychotic use, see CCPR, March/April 2019.*)

It is also important to remember that children and adolescents are more sensitive than adults to side effects of weight gain, extrapyramidal symptoms, somnolence, high cholesterol, high prolactin,

and type 2 diabetes. Taken together, there is little existing research to support the use of off-label prescriptions of antipsychotic medications for children.

Neurotoxicity

In addition to off-label efficacy concerns, we now have more information on the possible direct neurotoxicity of antipsychotic medications. In a letter to the editor of the *Australia & New Zealand Journal of Psychiatry*, the authors sound an alarm about the potential for antipsychotic medications to cause brain atrophy (Bastiampillai T et al, *Aust N Z J Psychiatry* 2019;53(6):499–500). They highlighted findings in animal models that showed an approximate loss of 8%–11% in brain volume compared to controls (Vernon AC et al, *Biol Psychiatry* 2011;69(10):936–944). In humans, first-episode schizophrenia is associated with brain volume changes in adolescents and young adults, moderated by illness duration, disease severity, substance abuse (particularly alcohol and cannabis), and antipsychotic treatment. In particular, some studies show that higher doses of antipsychotics played a larger part in reductions of brain volumes (Ho BC et al, *Arch Gen Psychiatry* 2011;68(2):128–137).

Another study of young adults with first-episode psychosis showed more cortical thinning in those on antipsychotic medications compared to both an unmedicated group and a control group. Even so, the medicated group performed better on performance testing and showed more functional activity in the dorsolateral prefrontal cortex than the unmedicated group, despite more thinning in that area (Lesh TA et al, *JAMA Psychiatry* 2015;72(3):226–234). While most of this research is correlational, not causal, it raises clear concerns.

Minimizing use of antipsychotics

Antipsychotics are often used when comprehensive care is not available. However, studies of comprehensive care show reductions in the perceived need for and use of these medications. A Washington state consultation program flags antipsychotic dosage, patient age, and the combination of medications prescribed (Barclay RP et al, *Health Serv Res* 2017;52(2):561–578). Prescribers then speak by phone with a child-adolescent psychiatric consultant

and discuss alternative interventions. In the 18 months following implementation, high-dose antipsychotic prescriptions for children and adolescents dropped by more than 50%. Programs such as one described by Dr. Ed Levin report similar reductions in antipsychotic use in a residential treatment setting for children receiving treatment for developmental trauma, with emphasis on methods for understanding the reasons for behavioral problems and techniques for de-escalation (Levin EC, *J Am Acad Psychoanal Dyn Psychiatry* 2009;37(3):519–538).

When prescribing an antipsychotic medication, clarify diagnoses and the range of possible interventions. For instance, when treating ADHD, have the specific medications for ADHD been optimized, has the patient had the benefit of good-quality behavioral therapy, or could school accommodations better meet the patient's needs? When increasing the dose of an antipsychotic, remember that higher doses usually mean more adverse effects but not always increased efficacy. Good practices are to hold ongoing discussions with the patient and family about the risks and benefits of antipsychotic medications; follow the “start low and go slow” mantra; clarify target dosing for the disorder; monitor for side effects at each visit, including body mass index (BMI); think about the clinical need for each medication; and remember that there is little evidence for simultaneous use of multiple antipsychotic medications in children.

CCPR VERDICT: The added concern of direct neurotoxicity of antipsychotic medications makes it imperative for child psychiatrists to improve diagnostic clarity, support comprehensive and rational treatment planning, and reduce dosages and use of antipsychotic medications where possible. Clinical consultation with colleagues is key in generating ideas to achieve such goals. The American Academy of Child and Adolescent Psychiatry is currently developing new practice guidelines for antipsychotic medications, and the working document can be accessed here: www.tinyurl.com/y49kc9zt

Research Updates
IN PSYCHIATRY

AUTISM

Engage Those Infants: Maternal Interaction and Autism

REVIEW OF: Schwichtenberg AJ et al, *Autism* 2019;23(4):821-833

Mother-infant interactions are a cornerstone of early development, supporting social and language development of children with or without autism spectrum disorder (ASD). Research on the impact of maternal behaviors on these interactions offers helpful guidance in clinical work with infants with ASD.

This study looked at the interactions between mothers and infants in families where at least one other child in the family had ASD. These infants are considered to have high risk for ASD. It was a prospective study, having partners rate the mothers using a well-standardized instrument, the Social Responsiveness Scale (SRS), and having trained coders rate videotaped interactions of mothers with the infant. The control group consisted of mothers and infants with no family history of ASD. These control infants are considered to be at low risk for having ASD.

The SRS differentiates well between typically developing (TD), at-risk, and ASD populations. And for the video measure, maternal social behavior in context (during play) was assessed by looking at face, vocalization, and positive affect.

All of the infants were assessed using a common autism instrument, the Autism Diagnostic Observation Scale (ADOS), at 36 months of age and classified as ASD, TD, or non-TD.

In both the high- and low-risk infants, mothers had similar responsiveness, not significantly different ($p = 0.40$), both falling within normal range of reciprocal social behavior (t -scores < 60). These findings held at 6, 9, and 12 months of age. Mothers in the high-risk group used slightly fewer responses than the low-risk group at 9 and 12 months, but these differences were neither statistically nor clinically significant—although in both groups, mothers with boys and mothers from

higher-income families tended to talk more to their babies.

On the ADOS, all the infants increased their frequency of social behavior responses to their mothers over time, which was good news.

And here's the key finding: In both groups, when mothers had positive emotional tone and tried to find more ways to connect with their children, the infants also had more positive emotions, vocalized more, looked at their mothers more, responded more, and very importantly, initiated more interactions. This pattern was most consistent when infants were 12 months of age.

CCPR'S TAKE

This study has several clinically relevant findings. The severity of an infant's difficulties did not dissuade the mother's efforts to communicate, infants generally improved with time, and mothers' positive affect and efforts to engage and interact were associated with improved social communication in their infants no matter the severity of the condition. These findings underline the importance of encouraging mothers to persist in attempting to engage infants with autism and related challenges—their efforts are likely to bear fruit.

—Pavan Madan, MD. Dr. Madan has disclosed that he has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

DYSREGULATION

Heart Rate Changes Linked to Emotional Dysregulation

REVIEW OF: Deutz MH et al, *J Am Acad Adolesc Psychiatry* 2019;58(6):589-599

Can we use heart rate to assess and track psychopathology? Child psychiatrists associate lower resting heart rate (HR-rest) and heart rate reactivity (HR-reactivity) with externalizing behaviors such as disruptive behaviors and aggression (“under-arousal”) and elevations with internalizing problems such as anxiety (“over-arousal”). The transdiagnostic approach of the NIH Research

Diagnostic Criteria (RDoC) offers research linking heart rate with emotional dysregulation. This study bridges these ideas to clinical practice.

In this Canadian study, the authors explored how HR-rest and HR-reactivity relate to dysregulation: 182 clinically referred children (75.8% boys) between 8 and 12 years old underwent heart rate monitoring at rest and during a computerized go/no-go task. 24.2% of children were on psychotropic medications, mostly stimulants. Dysregulation was measured from sub-scale scores on the clinically ubiquitous Child Behavior Checklist, specifically the Dysregulation Profile (CBCL-DP), which itself is intricately related to the CBCL Anxious/Depressed, Aggression, and Attention Problems subscales.

These researchers found that higher resting heart rate correlated with higher scores on the dysregulation and aggression subscales, but not for anxiety/depression or attention problems. Heart rate reactivity was not correlated to any of these scales. Although males were more likely to have elevated dysregulation and aggression scores, there was no link between gender and resting heart rate and reactivity.

The researchers also used a person-centered approach, in which subgroups with similar profiles were identified. This approach found that patients tended to sort into 3 symptom-profile groups: normative ($n = 92$), predominantly aggressive ($n = 69$), and dysregulated ($n = 14$). The dysregulated group had the highest scores (more symptomatic) for anxiety/depression, aggression, and attention problems. When the researchers mapped heart rate parameters onto these profiles, they found that youth in the predominantly aggressive group had higher HR-rest. In contrast, youth in the dysregulated group did not have elevated HR-rest but did have elevated HR-reactivity.

CCPR'S TAKE

Given the variability among people and confounding variables such as past trauma, it is difficult to apply these findings

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directly to individual patients. Still, with most of the heart rate literature focused on callous unemotional traits, this study reinforces the importance of looking beyond the categorical descriptors of the DSM and toward a more biologically informed approach. One day, perhaps we will be able to use simple physiological measures to help differentiate categories of diagnoses as well as alert us to patients who may have more propensity for aggression.

—*Jess Levy, MD.* Dr. Levy has disclosed that she has no relevant financial or other interests in any commercial companies pertaining to this educational activity.

SIDE EFFECTS

Weight Gain From Aripiprazole Same as Risperidone

REVIEW OF: Schoemakers RJ et al, *J Child Adolesc Psychopharm* 2019;29(3):192–196

Many providers prefer aripiprazole over risperidone for young patients due to observed lower incidence of weight gain. This is supported in studies with follow-up of less than 3 months. However, does aripiprazole fare better with long-term use?

Researchers reviewed records of children and adolescents treated with aripiprazole or risperidone for at least 12 months at a Dutch mental health organization between 2008 and 2015. Only 89 of 874 patients on risperidone and 42 on aripiprazole met the inclusion criteria as over 80% of the charts had missing baseline and/or follow-up data.

BMI z-scores (age- and sex-adjusted BMI) significantly increased for both medications over 12 months. The increase was marginally lower for aripiprazole (0.30, 95% CI = 0.07–0.53) than for risperidone (0.37, 95% CI = 0.21–0.53), but not statistically significant ($p = 0.97$). Of note, the aripiprazole group had a higher BMI-z score at baseline (0.18) compared to the risperidone group (-0.33), possibly as aripiprazole is preferred over risperidone for overweight kids.

The authors predicted that an 11-year-old boy with a BMI of 16.9 at baseline would have a predicted BMI of 18.2 with aripiprazole use for 12 months and 18.4 with risperidone, whereas that same boy would have a BMI of 17.5 without medications for that year.

CCPR'S TAKE

In this study, using aripiprazole to avoid weight gain was fruitless. The small sample size dampens our confidence in the results, but BMI-z scores offer a more accurate understanding of weight gain. If we must use these medications, “old-school” measures like packing lunch for school and eating dinner with the family, plus reducing fast food and screen time, can have an enormous positive impact on a child’s physical and mental well-being. Periodic assessment of BMI and metabolic profile should be routine, with dietary counseling and CBT where appropriate. Among pharmacological interventions, adjunctive metformin has the best data, followed by topiramate.

—*Pavan Madan, MD.*

ADHD

Crocus Sativus vs Methylphenidate for ADHD

REVIEW OF: Baziar S et al, *J Child Adolesc Psychopharmacol* 2019;29(3):205–212

The search for an equally effective, yet better tolerated alternative to stimulant medications continues. We often hear reports on the benefits of various non-pharmaceutical supplements. Now we have a new study looking at saffron (*Crocus sativus*). Saffron is reported to affect dopamine, norepinephrine, NMDA, and GABA- receptors, and it can improve depression, anxiety, and memory.

In this 6-week, randomized, double-blinded study conducted in an outpatient clinic affiliated with Tehran University, 54 youth (20% female, average age 8–9 years old) with ADHD were randomized to receive either saffron or methylphenidate (MPH). Psychiatric and

developmental comorbidities other than ODD were excluded. MPH was titrated using a fixed schedule up to 1 mg/kg per day in divided doses. Saffron was dosed at 20 mg/day for kids weighing under 30 kg, and 30 mg/day for kids weighing more. Outcome data included ADHD-RS parent and teacher rating scales at baseline and weeks 3 and 6, as well as side effects. The ADHD-RS may be unfamiliar to people in the US but has been found to be reliable and valid across multiple cultures.

Juveniles receiving saffron did just as well as those who received MPH in both the parent and teacher rating scales. Both groups showed symptom reduction at week 3 and week 6, with no statistically significant differences in outcomes between treatment groups at either point in time. Parents reported an average ADHD-RS score improvement of 23.72 points for saffron (baseline score: 34.20 ± 4.69 , week 3 score: 15.68 ± 5.86 , week 6 score: 10.48 ± 3.80) versus a 23.04 point reduction in the MPH group (baseline: 33.56 ± 6.48 ; week 3: 13.56 ± 5.78 ; week 6: 10.52 ± 5.18). Teachers reported an average total score reduction of 9.56 points for saffron vs 9.24 for MPH.

Interestingly, there were no statistically significant differences in side effects, including insomnia and decreased appetite, though there was a trend toward improvement with the saffron group (16% reported anorexia or insomnia with saffron versus 46% in the MPH group).

CCPR'S TAKE

The results of this study are so impressive that they seem too good to be true. Hopefully, larger studies that include a placebo group will verify whether saffron indeed works just as well as methylphenidate with equal or better tolerability. Also, the dose of methylphenidate was low, and the market cost of saffron is exorbitant, not to mention the potential issues with pill-to-pill variability given the lack of regulatory oversight. Even so, for families who are not ready to embark on the road of prescription medications, saffron may be worth considering.

—*Jess Levy, MD.*

CME Post-Test

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1. What is the estimated percentage of off-label use of atypical antipsychotics in children and adolescents in the US? (LO #1)
 - a. 35%
 - b. 50%
 - c. 65%
 - d. 80%
2. A 2019 study indicates that aripiprazole and risperidone are effective first-line treatments for irritability in pediatric patients with autism spectrum disorder. (LO #2)
 - a. True
 - b. False
3. Which of the following is true about off-label antipsychotic use for treating children and adolescents with ADHD? (LO #1)
 - a. The best evidence for ADHD treatment is behavioral therapy with either stimulants or antipsychotics
 - b. Recent studies show that a longer course of low-dose antipsychotics is as effective as behavioral therapy for treating ADHD
 - c. The best evidence for ADHD treatment is stimulants combined with a short course of antipsychotics
 - d. Recent studies show a lack of efficacy for antipsychotics when treating ADHD
4. In a 2019 study, higher resting heart rates in clinically referred children between 8 and 12 years old were associated with which of the following findings? (LO #3)
 - a. Higher scores on subscales for dysregulation and aggression as well as anxiety and depression problems in both boys and girls
 - b. Higher anxiety/depression or attention problems in boys
 - c. Higher anxiety/depression or attention problems in both boys and girls
 - d. Elevated dysregulation and aggression scores in boys
5. According to Dr. Brookman-Frazee, using parent-mediated and child-focused approaches in a comprehensive strategy for treatment can help reduce physical or verbal aggression and tantrums in children on the autism spectrum. (LO #2)
 - a. True
 - b. False

Expert Interview

Continued from page 3

sensory sensitivity. We pay especially close attention to the context of behaviors. For example, a child at school might initiate a social interaction engagement in a somewhat inappropriate way. That cues us to what's going on underneath that behavior—for example, that the child is trying to initiate. In this case, we would teach the child to initiate in a way that elicits a positive response and gets positive feedback from the other kids on the playground.

CCPR: This is so helpful—tell us more about the AIM HI training.

Dr. Brookman-Frazee: Our current goal for the AIM HI intervention is focused on clinicians providing psychotherapy and has been done in the context of community-based research projects. For those who are not able to access AIM HI training through research participation, there are resources that offer information on these approaches. The National Professional Development Center on Autism Spectrum Disorder is a website listing evidence-based practice for ASD (<https://autismpdc.fpg.unc.edu>). There are brief training modules on specific strategies that are relevant to challenging behaviors, on functional assessment (how to define a behavior), and on antecedent (proactive) strategies that families, teachers, and others in the child's life can use to modify the environment to support the child's learning and behaviors. These modules could be helpful for individuals who are not necessarily delivering psychotherapy, to help them become familiar with terminology and general approaches.

CCPR: Thank you for your time, Dr. Brookman-Frazee.

THE CARLAT REPORT CHILD PSYCHIATRY

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**Autism in Children
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Next Issue:
**ADHD in Children
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Jan/Feb/March 2020

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Note From the Editor-in-Chief

Welcome to the final 2019 issue of the *Carlat Child Psychiatry Report*. Our theme for this issue is autism, and we have a number of insights to share. One highlight relates to the general observation that a child's mental health and development hinges on maternal behavior; we cover research on mothers' impact on children's social emotional growth along the autism spectrum. Also for this issue, we were delighted to interview Dr. Lauren Brookman-Frazer from UCSD about her program to help clinicians dissect ASD-related difficulties and put together more effective treatment plans. That's good, since we also report on increasing concerns about antipsychotic safety. And if you must use them, we have additional guidance on antipsychotic selection. In this issue, 2 articles give us relative reassurance about risperidone—check them out to learn more.

For 2020, our plan is to create 4 impactful double issues that will arrive seasonally rather than 7-8 issues of varying sizes. To paraphrase Dr. Seuss (à la *One Fish Two Fish Red Fish Blue Fish*): Will you like it? We don't know! So look for your next issue—Jan/Feb/March on ADHD—to arrive early next year.

Finally, we hope you are enjoying listening to our podcasts as much as we are enjoying recording them. They are blowing up on the internet, going near viral—if you haven't listened, try them out! And as always, please write with your feedback. We truly value and listen to what you have to say about our efforts to help you in your everyday practice.

Regards, Josh Feder, MD
jfeder@thecarlatreport.com



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