UNIVERSITY OF SOUTH ALABAMA COLLEGE OF MEDICINE
DEPARTMENT OF FAMILY MEDICINE

ATTENTION DEFICIT HYPERACTIVITY DISORDER AND STIMULANT MANAGEMENT GUIDELINES

I. MEDICATIONS AND OTHER THERAPEUTIC MEASURES

A. Definitions.

Most of the traditional medications used to manage Attention Deficit/Hyperactivity Disorder (ADHD) are stimulants; these are Schedule II controlled substances with a high potential for abuse and diversion. Other pharmacologic and nonpharmacologic agents are also available.

B. Scope.

This chapter discusses general prescribing, evaluation, and documentation workflow recommendations for the University of South Alabama Department of Family Medicine (USAFM). Abbreviated diagnostic and treatment information, and dosage guidelines, are also included.

C. Stimulants.

1. Stimulants are generally considered the most effective drugs for the treatment of ADHD in the pediatric population.

2. Stimulants affect the dopaminergic and noradrenergic systems, increasing the release of catecholamines in the central nervous system. Increased norepinephrine and dopamine concentrations in the brain stem, midbrain, and frontal cortex are thought to be responsible for the increased attention span and concentration in ADHD patients treated with stimulants.

3. Methylphenidates and amphetamines are the two major classes of stimulants; there are several short- and long-acting variants available. Some of these are available generically.

4. Common side effects include decreased appetite, sleep problems, transient headache, transient stomachache, and mild weight loss. These symptoms often improve with continued treatment, or can be managed by dosage and timing adjustments.

5. Infrequent side effects include significant weight loss, increased heart rate, increased blood pressure, dizziness, hallucinations, mania, and exacerbation of tics and Tourette syndrome (rare). These symptoms require the immediate attention of the physician. In addition, deceleration of linear growth may occur, but adult height is not affected.

6. Drug holidays, i.e., discontinuation of stimulant medications on weekends or during the summer, are not routinely recommended, but may be of use with side effect management. Examples include children who are not meeting expected growth rates, or who are having insomnia.

D. Non-stimulants.

1. Atomoxetine (Strattera).

   a. Selective norepinephrine reuptake inhibitor.

   b. Approved for treatment of children over 6 years of age; one of only two agents specifically approved for use in adults. (The only non-stimulant.)

   c. The first FDA-approved medication for the treatment of ADHD that is not scheduled as a controlled substance. There appears to be no abuse potential.

   d. While stimulants are the best-established medication for ADHD, atomoxetine is an acceptable first-line therapy for patients in whom the side effect profile of stimulants poses an unreasonable risk (e.g., personal or family history of cardiac disease, or personal history of substance abuse). Some would consider it the first drug of choice for use in adults.

   e. Branded; more expensive than generic stimulants.

   f. Side effects.

      i) General adverse effects of atomoxetine include weight loss, abdominal pain, decreased appetite, vomiting, nausea, dyspepsia, and sleep disturbance.

      ii) Primarily because of reports of rare, serious cardiac events in patients receiving stimulant medications, atomoxetine is labeled with warnings of cardiac risks, such as hypertension, tachycardia, QT prolongation, myocardial infarction, and stroke.

      iii) Atomoxetine has been reported to be associated with the onset of motor tics, though at least one trial in patients with ADHD and comorbid tic disorders found atomoxetine did not exacerbate tics compared to placebo.

      iv) Severe hepatotoxicity has occurred on rare occasions.

      v) Atomoxetine may increase the risk of suicidal thinking in a very small number of patients; the FDA requires a boxed warning due to this concern.

      vi) Despite all of the above, atomoxetine is generally safe and well-tolerated.

2. Antidepressants are considered a second-line option, after stimulants and atomoxetine.

    a. Tricyclics.

        i) At least modestly effective alone or in combination with stimulants.

        ii) Keep in mind tricyclic side effects and warnings.

    b. Selective serotonin reuptake inhibitors (SSRIs) and serotonin and norepinephrine reuptake inhibitors (SNRIs).

        i) The response to these agents has been less promising than tricyclics in adults with ADHD, but the data are limited.

        ii) Few, if any, studies have been done in children.

    c. Bupropion (Wellbutrin, generic).

        i) Modest efficacy in decreasing hyperactivity and aggressive behavior.

        ii) Adverse effects include motor tics and a decreased seizure threshold.

3. Alpha-2-adrenergic agonists.

    a. Efficacy data is sparse.

    b. May be useful in overaroused, easily frustrated, highly active, or aggressive individuals.

    c. Potentially useful in children with comorbid tics or Tourette syndrome who are intolerant of stimulants. May be more useful as an adjunct to a stimulant (e.g, for those with side effects or at maximal dosage) than as a single agent.

    d. Examples include clonidine (Catapres, generic) and guanfacine (Tenex, generic).

    e. Extended-released versions of clonidine (Kapvay) and guanfacine (Intuniv) have been FDA-approved medication for the treatment of ADHD.

    f. Side-effects of clonidine include sedation, depression, headache, and possible hypotension.

E. Summary table of pharmacologic agents for ADHD, adapted from the National Initiative for Children's Healthcare Quality ADHD Toolkit and Treatment Guidelines from The Medical Letter, with updates to include subsequently-released agents.

Stimulant Medications - Immediate Release			
Active Ingredient	**Drug Name**	**Dosing**	**Duration of Behavioral Effects**
Mixed salts of Amphetamine (Dextroamphetamine/ Levoamphetamine)	ADDERALL/GENERIC tab (scored): 5, 7.5, 10, 12.5, 15, 20, 30 mg.	Start at 5 mg 1-2 times per day; increase by 5 mg weekly until control achieved. Max rec'd daily dose: 40 mg. Do not use in patients with cardiac disease.	4-6 hrs depending on dose.
Dextroamphetamine	PROCENTRA: 5 mg/tsp liq. GENERIC tabs (scored): 5, 10 mg.; 5 mg/tsp liq may be available.	Start at 5 mg 1-2 times per day; increase by 5 mg weekly until control achieved. Max rec'd daily dose: 40 mg.	4-6 hrs.
Methylphenidate	METHYLIN: 5 mg tab; 10 & 20 mg scored tabs; 2.5, 5, & 10 mg chewable tabs; 5 & 10 mg/tsp liq. RITALIN: 5 mg tab; 10 & 20 mg scored tabs. GENERIC: Similar tabs/liq.	Start at 5 mg 1-2 times per day; increase by 5 mg weekly until control is achieved. May need a third, smaller dose in the afternoon. Max rec'd daily dose: 60 mg; some adults/older children may need 80 mg/day.	3-5 hrs.
Dexmethylphenidate	FOCALIN tab: 2.5, 5, 10 mg.	Start at 2.5 mg 1-2 times per day; increase by 5 mg weekly until control is achieved. Max rec'd daily dose: 20 mg, though 30 mg may actually be needed.	5-6 hrs.
Stimulant Medications - Sustained Release			
Active Ingredient	**Drug Name**	**Dosing**	**Duration of Behavioral Effects**
Mixed salts of amphetamine (Dextroamphetamine/ Levoamphetamine)	*Bimodal Release* ADDERALL XR cap (can be sprinkled): 5, 10, 15, 20, 25, 30 mg.	Start at 5-10 mg in AM; increase by 10 mg weekly until control achieved. Max rec'd daily dose: 40 mg. Do not use in patients with cardiac disease.	8–10 hrs.
Dextroamphetamine	DEXEDRINE SPANSULE/ GENERIC caps (can be sprinkled): 5, 10, 15 mg.	Start at 5 mg in AM; increase by 5 mg weekly until control achieved. Max rec'd daily dose: 45 mg.	6-8 hrs.
Lisdexamfetamine	VYVANSE cap (can be opened & disolved in water): 20, 30, 40, 50, 60, 70 mg.	Typically start at 30 mg QAM; increase by 10 mg weekly until control achieved. Max rec'd daily dose: 70 mg. No euphoric effect IV/nasally; should have less abuse potential.	Peak 1-4 hrs, duration 10-12 hrs.
Methylphenidate intermediate-acting	RITALIN SR tab: 20 mg. GENERIC SR tab: 20 mg.	Start at 20 mg in AM; increase by 20 mg weekly until control achieved. May need a 2nd dose or a regular methylphenidate dose in afternoon. Max rec'd daily dose: 60 mg; some adults/older children may need 80 mg/day.	4–8 hrs.

	METADATE/METHYLIN ER tab: 10, 20 mg.	Start at 10 mg in AM; increase by 10 mg weekly until control is achieved. May need a 2nd dose or a regular methylphenidate dose in afternoon. Max rec'd daily dose: 60 mg; some adults/older children may need 80 mg/day.	4–8 hrs.
Methylphenidate long-acting	*Bimodal Osmotic Release* CONCERTA cap (noncrushable): 18, 27, 36, 54 mg.	Start at 18 mg in AM; increase by 18 mg weekly until control achieved. Max rec'd daily dose: 72 mg.	8–12 hrs.
	Bimodal Release METADATE CD ER cap (can be sprinkled): 10, 20, 30, 40, 50, 60 mg. RITALIN LA cap (can be sprinkled): 10, 20, 30, 40 mg.	Start at 10 mg in AM; increase by 10 mg weekly until control achieved. Max rec'd daily dose: 60 mg; some adults/older children may need 80 mg/day.	8-12 hrs.
	Liquid QUILLIVANT XR: 5 MG/ML	Start at 20 mg PO in AM; increase by 10 mg weekly until control achieved. Max rec'd daily dose: 60 mg.	8-12 hrs.
	Patch DAYTRANA: 10, 15, 20, 30 mg patches.	Start at 10 mg; increase by 10 mg weekly until control achieved. Max rec'd daily dose: 30 mg. Wear 9 hrs., remove for 15 hrs. May have more anorexia, insomnia, tics; can remove earlier to help sleep.	10-12 hrs.
Dexmethylphenidate	*Bimodal Release* FOCALIN XR ER cap (can be sprinkled): 5, 10, 15, 20, 30, 40 mg.	Start at 5 mg in AM; if changing from methylphenidate, start at 1/2 that dose. Increase by 5 mg weekly until control is achieved. Max rec'd daily dose: 30 mg peds, 40 mg adults.	12 hrs.

Stimulant Contraindications and Side Effects

Active Ingredient	Contraindications *(Stimulants can be used in children with epilepsy.)*
Mixed salts of amphetamine	MAO inhibitors within 14 days, glaucoma, cardiovascular disease, hyperthyroidism, moderate to severe hypertension.
Dextroamphetamine	MAO inhibitors within 14 days, glaucoma.
Methylphenidate	MAO inhibitors within 14 days, glaucoma, preexisting severe gastrointestinal narrowing. Caution should be used when prescribing concomitantly with anticoagulants, anticonvulsants, and tricyclic antidepressants.

Common Side Effects: Decreased appetite, sleep problems, transient headache, transient stomachache, behavioral rebound.

Infrequent Side Effects: Weight loss, increased heart rate, increased blood pressure, dizziness, growth suppression, hallucinations/mania, exacerbation of tics and Tourette syndrome (rare).

Possible Strategies for Common Side Effects: (In general, if one stimulant is not working or produces too many adverse side effects, try another stimulant before using a different class of medications.)
Dose after meals • Try sustained-release stimulant • Decrease dose • Frequent snacks • Try drug holidays • Add reduced dose in late afternoon • Consider coexisting conditions, especially depression • Restrict or eliminate caffeine • Stabile bedtime routine • Consider small bedtime medication dose • Consider referral to mental health specialist.

Non Stimulant Medications		
Active Ingredient	**Drug Name**	**Dosing/Notes**
Atomoxetine HCL	STRATTERA cap: 10, 18, 25, 40, 60, 80, 100 mg.	Start as a single daily dose, based on weight, 0.5 mg/kg/day for the first week, then increase up to a max 1.4 mg/kg/day, all given in 1 daily dose. May cause initial somnolence/nausea, usually relieved by slower titration or splitting to BID. SNRI, so titrate slowly if using other SNRIs. No MAO inhibitors within 14 days
Clonidine immediate-release	CATAPRES/GENERIC: 0.1, 0.2, 0.3 mg scored tabs.	Off-label use; no standardized dosing. Reasonable to start at very low BID dose, increasing to effect or intolerance due to sedation or hypotension, to theoretical max 2.5 mg/day. Probably better in addition to a stimulant than instead of one.
Clonidine extended-release	KAPVAY ER tabs: 0.1, 0.2 mg	Start 0.1 mg QHS, increasing to effect or intolerance due to sedation or hypotension, to max 0.4 mg/day. Probably better in addition to a stimulant than instead of one.
Guanfacine immediate-release	TENEX/GENERIC tabs: 1, 2 mg	Off-label use; no standardized dosing. Reasonable to start at 1 mg QHS, increasing to effect or intolerance due to sedation or hypotension, to theoretical max 3 mg/day. Probably better in addition to a stimulant than instead of one.
Guanfacine extended-release	INTUNIV ER tab: 1, 2, 3, 4 mg (The IR version Tenex/generic 1, 2 mg tabs has been used off-label as well.)	Start 1 mg QAM; increase 1 mg wkly as needed to label max of 4 mg. However, additional benefit may be seen at doses up to 0.12 mg/kg/day in adolescents. Sedation common. Off-label, it may be more beneficial combined with a stimulant than as a single agent.
Modafinil	PROVIGIL: 100 mg tab, 200 mg scored tab.	Has been used off-label for ADHD at 200-400 mg QAM. Company withdrew FDA application for ADHD.

F. Behavioral and psychological interventions.

1. Behavioral interventions have not been demonstrated to significantly reduce the core symptoms of ADHD (i.e., hyperactivity, impulsivity, inattention).

2. However, behavioral therapies can provide coping skills and improve the behavior problems often seen in children with ADHD, and thus are included in the treatment recommendations of many pediatric and psychiatric organizations.

3. Some measures parents can employ include:

   a. Maintaining a daily schedule.
   b. Keeping distractions to a minimum.
   c. Providing specific and logical places for the child to keep his schoolwork, toys, and clothes.
   d. Setting small, reachable goals.
   e. Rewarding positive behavior.
   f. Using charts and checklists to help the child stay “on task.”

g. Limiting choices.
h. Finding activities in which the child can be successful (e.g., hobbies, sports).
i. Using calm discipline (e.g., time out, distraction, removing the child from the situation).

4. It should be noted that ADHD symptoms often improve with time regardless of treatment modality.

5. In adults, comorbid psychological conditions often complicate ADHD, and it is often desirable to avoid stimulant medications in this population. As a result, behavioral and psychological interventions should be strongly considered. Such methods include:

   a. Marital counseling.

   b. Self-help groups.

   c. Evaluation for learning disabilities, followed by appropriate educational accommodations, if indicated.

   d. Instruction in time management skills.

II. POLICIES AND PROCEDURES

A. For children/adolescents new to the practice who have been taking stimulants, who are requesting that USAFM take over the prescribing of these medications, follow these procedures:

   1. Request records documenting the evaluation and diagnosis of ADHD from the previous physician.

   2. At the discretion of the physician, a one month supply of the patient's previous stimulant medication may be prescribed while awaiting these records.

   3. If previous records appear to appropriately document the evaluation, diagnosis, and treatment of ADHD, continue prescribing, following the general policies outlined below.

   4. If previous records are not obtainable, follow the procedures below for initiation of ADHD treatment.

B. For children/adolescents who are being newly evaluated for the diagnosis of ADHD, follow these procedures:

   1. It is appropriate to discuss the option of further psychiatric or psychological evaluation, and to offer referral for such services to the parent and patient. However, it should be

recognized that such resources are often not readily available in the community, and the treatment of most cases of ADHD is within the scope of practice for most pediatricians and family physicians.

2. Perform an age-appropriate history and physical exam, with particular emphasis to the cardiac exam. There is no routine laboratory work that is recommended or required for the diagnosis of ADHD.

3. Provide ACTeRS ADHD evaluation questionnaires, to be completed by at least one parent and one teacher. (Remove the scoring part of the form and retain it on the chart.) Have the parents schedule a follow-up appointment after these have been completed; if there are any other evaluations that have been completed at school or elsewhere, have the parents bring those to the appointment as well.

4. At the return visit, score the questionnaires, noting the following DSM criteria for ADHD. In practicality, if the questionnaire indicates a high probability of ADHD, and this is consistent with your history and physical, the diagnosis is quite likely. Note that many would recommend specialty referral rather than making the diagnosis before age 6. Also, many authorities ignore the DSM requirement of documenting symptoms or impairment before age 7, either extending that to age 12, or ignoring age all together.

DSM-IV CRITERIA FOR ATTENTION DEFICITY HYPERACTIVITY DISORDER
Presence of either 1 or 2
1. Six (or more) of the following symptoms of inattention have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:
Often fails to give close attention to details or makes careless mistakes in schoolwork, work or other activities.
Often has difficulty sustaining attention in tasks or play activities.
Often does not seem to listen when spoken to directly.
Often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions).
Often has difficulty organizing tasks and activities.
Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework).
Often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools).
Is often easily distracted by extraneous stimuli.
Is often forgetful in daily activities.
2. Six (or more) of the following symptoms of hyperactivity-impulsivity have persisted for at least six months to a degree that is maladaptive and inconsistent with developmental level:
Hyperactivity
Often fidgets with hands or feet or squirms in seat.
Often leaves seat in classroom or in other situations in which remaining seated is expected.
Often runs about or climbs excessively in situations in which it is inappropriate (in adolescents, or adults, may be limited to subjective feelings of restlessness).
Often has difficulty playing or engaging in leisure activities quietly.
Is often "on the go" or often acts as if "driven by a motor."
Often talks excessively.
Impulsivity
Often blurts out answers before questions have been completed.
Often has difficulty awaiting turn.
Often interrupts or intrudes on others (e.g., butts into conversations or games).
Additional criteria
Some hyperactive, impulsive, or inattentive symptoms that caused impairment were present before age 7 years.
Some impairment from the symptoms is present in two or more settings (e.g., at school [or work] and at home.
There must be clear evidence of clinically significant impairment in social, academic, or occupational functioning.

5. The American Heart Association now advises consideration of a baseline EKG before starting stimulant medications. Given the barriers this could present for treating ADHD, it is common practice to obtain an EKG only in the face of worrisome findings on history and physical. If there are any abnormalities in EKG, heart rate, or blood pressure, stimulant prescribing should be deferred until there has been further evaluation by a pediatric cardiologist.

6. A personal history of previous substance abuse in adolescents is a contraindication to use of stimulants. A history of parental substance abuse would also present great concern for the safety of prescribing these medications. Consider use of the OPIOID RISK TOOL in older adolescents.

7. If ADHD is diagnosed, and no contraindications are identified, discuss the initiation of treatment with stimulant medications. Discuss departmental policies with the patient, and have the patient/parent complete a CONTROLLED SUBSTANCES AGREEMENT, including the appropriate RISKS AND SIDE EFFECTS FORM.

8. Provide a copy of the document ADVICE FOR PARENTS OF CHILDREN WITH ADHD.

9. Begin prescribing one of the stimulant agents discussed above at an appropriate starting dose. Provide 30 days of medication, and schedule a follow-up visit in 25-30 days. Ask the parent to bring a note from the teacher who works most frequently with the patient, discussing his/her progress.

10. At follow-up visits, assess blood pressure, heart rate, clinical improvement, and side effects. (For patients in the practice who are already on stimulants, but do not have a baseline EKG, the American Heart Association recommends considering an EKG at the next scheduled visit; see II.B.5 above.) Adjust treatment as necessary, and recheck again in 25-30 days.

11. When medication response appears optimal, inform the parents that prescriptions will be refilled monthly under the terms of the CONTROLLED SUBSTANCE AGREEMENT, and plan for a follow-up visit every 3 months.

12. For patients with a contraindication to stimulants, a trial of atomoxetine (Strattera) may be considered.

13. Urine drug screens are not required on a specific schedule, but may be obtained at any time at the discretion of the provider. Note that amphetamines are identified on the standard urine drug screen at the University of South Alabama, while methylphenidate is not. One might consider drug screens if there is a concern of concomitant use of nonprescribed drugs.

14. The following are reasons to consider referral to a specialist (e.g., a psychologist, psychiatrist, neurologist, educational specialist, or developmental-behavioral pediatrician) for further assistance:

    a. Age under 6 years.

    b. Lack of response to, or intolerance of, all medications without contraindications.

    c. Mental retardation.

    d. Developmental disorder, such as speech or motor delay.

    e. Learning disability.

    f. Visual or hearing impairment.

    g. History of abuse.

    h. Severe aggression.

i. Seizure disorder.

j. Comorbid psychological/emotional problems.

k. Chronic illness that requires treatment with a medication that interferes with learning.

C. ADHD in adults.

1. The diagnosis and treatment of ADHD in adults is controversial. The DSM criteria are primarily based on children, and the patient is often emotionally invested in the diagnosis. It is usually advisable to plan a consultation visit with one of our psychologists, or offer outside referral to a psychiatrist, before initiation of treatment. Many primary care physicians would consider ADHD in adults outside the scope of their practices.

2. There are a number of commercially available adult ADHD evaluation tools and questionnaires. Examples include the Wender Utah Scale, the Brown Adult ADD/ADHD Scale, and Conner's Adult ADHD Rating Scales (CAARS). However, they have false positive rates of 15-40%, especially in the presence of other psychological conditions, and studies have shown responses are easily falsified by test-takers motivated to demonstrate a diagnosis of ADHD. Consequently, while they may play a role in the evaluation of adults suspected of having ADHD, such screening tools cannot be used as the primary arbiter of the diagnosis.

3. If a patient reports currently using a stimulant medication from another physician, it is left to the doctor's discretion as to whether or not to prescribe one month of this medication while consultation/evaluation is arranged.

4. Concomitant psychiatric conditions are often present in adults who under evaluation for ADHD. It is recommended that these conditions be treated first, before specific treatment for ADHD. Examples of such syndromes include:

   a. Depression.

   b. Anxiety disorders.

   c. Bipolar disorder.

   d. Substance abuse of any kind. In particular, long term-marijuana or alcohol abusers often have symptoms of inattention and poor concentration. Additionally, it should be noted that the incidence of stimulant abuse is very high in persons with a history of other substance abuse.

e. Several personality disorders. In particular, antisocial personality disorder, characterized by arrests, repeated failure to fulfill parental or work-related obligations, and an absence of remorse, may be confused with ADHD.

5. Treatment options.

a. If the decision is made to treat ADHD in an adult, atomoxetine (Strattera) is recommended as the drug of first choice, since it is not a stimulant, and is specifically FDA-approved for ADHD in adulthood. If a patient presents to the practice reporting good results with atomoxetine, this prescription may be continued without seeking consultation. Atomoxetine does not require a CONTROLLED SUBSTANCE AGREEMENT.

b. The other non-stimulant options discussed above would be reasonable considerations if atomoxetine does not achieve a satisfactory response. While data are limited comparing stimulants to antidepressants, there is some evidence to suggest that they are similarly effective. Combinations of different classes of these drugs may also be used.

c. Non-pharmacological treatment should also be considered instead of, or in combination with, pharmacological treatment. Given the high incidence of concomitant psychological conditions in adults suspected of having ADHD, behavioral and psychological interventions are often helpful in the motivated individual, and may provide sufficient relief from ADHD-related life impairment.

d. Stimulants.

i) Despite the fact that most of the experience with stimulant use is in the pediatric population, the bulk of the data supports the efficacy of stimulants in adults.

ii) While effective, the response to stimulants in adults is often not as good as it is in children; higher doses are also often required.

iii) If treatment with stimulants is chosen, the procedures outlined for pediatric prescribing in II.B above should be followed in an age-appropriate fashion. In particular, it is advisable to employ the OPIOID RISK TOOL before prescribing stimulants to adults.

iv) If treatment with stimulants is chose, consideration should be given to lisdexamfetamine (Vynase).

a) It is a prodrug that requires GI digestion for conversion to the active ingredient dextroamphetamine. As such, there is minimal abuse potential if snorted or injected.

b) Unlike mixed salts of amphetamine (Adderall/Adderall XR), lisdexamfetamine is a single-enantiomer amphetamine formulation. Some patients respond better to the mixed isomer preparation.

c) Experience is currently limited with lisdexamfetamine. It has the same side effect profile as other stimulants, except that adverse effects appear to occur more frequently, leading to a higher discontinuation rate.

d) It is the only stimulant specifically approved for adult use.

e) It is not available generically, and thus is more expensive than many other alternatives.

6. Children with ADHD moving into adulthood.

a. ADHD symptoms often improve with time regardless of treatment modality, and the impact on life evolves with age and the circumstances of the patient's day-to-day life. As such, many children will be able to taper, and eventually discontinue, stimulant medications in late adolescence to early adulthood. This option should be discussed with patients, and encouraged.

b. If the patient approaching adulthood has shown stable, good response to stimulant medications, and discontinuation is not successful, it is reasonable to continue such medications into adulthood, with ongoing monitoring as described above.

c. Sometimes a patient who used stimulants for ADHD in childhood will present as a young adult after a period of time off such medications, requesting their resumption. It is advisable to consider a trial of atomoxetine under these circumstances. However, if response is inadequate, it is not unreasonable to resume the previously used stimulant; alternately, the patient could be referred for specialty consultation.

d. While adult ADHD may be viewed as a chronic, life-long condition continuing from early childhood, little is known about the long-term effects of stimulant medications, since few longitudinal studies have followed children receiving stimulants into adulthood.

III. REFERENCES AND FURTHER READING

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