The Ethical Dilemma of Using Stimulants in Children with ADHD

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While growing up, children observe all that is around them and use these new experiences to build who they will become in the future. The environment, including all that is within their surroundings plus their genetic composition come together to dictate how they will react to the situations that come before them on a daily basis. When it comes to a child’s behaviour, it is hard to distinguish what aspects are genetically part of the child’s personality and what was brought about by environmental influence. If this is not complicated enough, we then must always consider the possibility of disease and possible chemical deficiencies that can occur within the human brain. Now that society is so advanced in so many biological manners, things become more complex, since it seems that the more knowledge we gain the more information we realize is still unknown, especially when it comes to the central nervous system.

Teachers and parents have recognized children who have a greater difficulty concentrating on tasks or simply misbehaving on a regular basis for many years. It is not new to teachers to have a child in their class acting out more than the other children. Maybe it is just new that we now have recognized a chemical change in these childrens’ brains that may predispose them to act in this manner without their control. It would seem advantageous to now be able to recognize children with these problems, diagnose them and provide them with appropriate pharmacological therapy. What happens though when the effective therapy is something that is not accepted in society to give to children? Even if this therapy is effective and shows great benefits in almost all children with this type of disorder. Parents fight with this
debate when their child is diagnosed with the disorder known today as attention-deficit/hyperactivity disorder (AD/HD). Some people will argue that it is not ethical to give children drugs called stimulants, which are known to be addictive. But the medical community may see it as withholding appropriate therapy for a child who clearly has a change in brain function that needs medical intervention. Any medication that has some effect will have side effects. The medical field is aware of the many side effects that children who receive stimulants for AD/HD may experience, but many of the long-term effects are often debated and are not as clear in the studies available today. It is the job of parents to protect their children from harm, but which harm is worse, not being able to learn because of an uncontrolled disease state or experiencing some side effects of a medication?

Society has recognized that this disorder is being diagnosed more and more frequently within recent years. This could be because we have finally found something that helps these children and physicians realize that medicating these children is the only effective therapy available. Although, it takes time to properly diagnose children with ADHD. It is important to be certain that children who simply want attention or have not been taught how to behave properly are not given stimulants for a condition they do not have. It is the physicians’ responsibility to take to the time to evaluate every child with great detail and precision in order to not over-diagnose the youth of today.

Teachers are usually the first people who either notice AD/HD in children or are the first to bring it to the attention of the parents who may already be aware of something not being normal in their child. Teachers should therefore receive an extensive amount of information on
ADHD and they should be required to read the research that has been conducted in this area. In many situations this isn’t the case and teachers may not be appropriately distinguishing this disorder from similar ones or they may be giving parents false information about the disorder and its treatment. Often teachers try to use their experience to provide these children with cognitive behaviour therapy even though recent data states that this is often ineffective in children with definite AD/HD.

The pharmacist is usually the health care provider parents go to for conformation of their worries or clarification of the information the physician have told them. It is the pharmacist’s job to let parents know the side effects of stimulants but also their benefit in these children. Knowing that stimulants provide effective relief for these children, yet they cause some serious side effects, teachers are often giving out improper information and that physicians are not always diagnosing properly, can help pharmacists decide what are the ethical matters that surround stimulant use in these children.

The symptoms of AD/HD usually occur around the age of 3 years but must occur before the age of 7 years. Environmental and genetic factors are involved in the development of children with AD/HD. Children who have parents who had AD/HD as children or adult AD/HD are 50% more likely to have AD/HD. (DiPiro 1134) The environmental factors that play a role are currently identified as, obstetric adversity, maternal smoking, and adverse parent-child relationships. Although, like in many psychiatric diseases, currently brain studies show no definite pathophysiologic markers of AD/HD, but the prefrontal cortex, basal ganglion, and caudate volumes are consistently reported as abnormal, typically smaller. It has been found that
individuals with AD/HD are twice as likely to display a defective 7-repeat allele of the dopamine receptor gene. In addition, this gene has been related to a deficiency in translating the dopaminergic signal to the second messenger system, where norepinephrine and epinephrine are agonists at this receptor. (DiPiro 1134) These problems in the brain cause children with AD/HD to be unable to control their behaviour, resist distractions, and develop an awareness of space and time. These abnormalities in the catecholamine neurotransmitters, dopamine and norepinephrine cause these children to have these inattentive/hyperactive symptoms. (DiPiro 1134) There are three main types of AD/HD categories: AD/HD primarily of the inattentive type, AD/HD primarily of the hyperactive-impulsive type, and AD/HD combined type. (Homer 1160) The DSM-IV criteria explains how each of these types present. First for AD/HD inattentive type, the children must have 6 or more of the following for at least 6 months:

a) Often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities

b) Often has difficulty sustaining attention in tasks or play activities

c) Often does not seem to listen when spoken to directly

d) 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)

e) Often has difficulty organizing tasks and activities

f) Often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)

g) Often loses things necessary for tasks or activities (eg, toys, school, pencils, books, or tools)
h) Is often easily distracted by extraneous stimuli
i) Is often forgetful in daily activities
(Homer 1162)

For the second type, ADHD with hyperactivity-impulsivity, children must have 6 or more of the following for greater than 6 months:

Hyperactivity:

a) Often fidgets with hands or feet or squirms in seat
b) Often leaves seat in classroom or in other situations in which remaining seated is expected
c) 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)
d) Often has difficulty playing or engaging in leisure activities quietly
e) Is often “on the go” or often acts as if “driven by a motor”
f) Often talks excessively

Impulsivity:

g) Often blurts out answers before questions have been completed
h) Often has difficulty awaiting turn
i) Often interrupts or intrudes on others (e.g., butts into conversations or games)

(Homer 1162).

Finally if the child’s behaviour meets both the inattentive and the hyperactivity-impulsivity criteria then he or she is considered to have the combined type of AD/HD. (Homer 1162) In addition to meeting the above criteria, some of these symptoms must be present before the age of 7 years, they must also be present in 2 or more environmental settings, and these symptoms
cannot be the cause of some other mental disorder. (Homer 1162). Parents, teachers, daycare workers, and physicians should be made aware of these criteria so that they can look for these behaviors in children who might be suspected to have this disorder. It takes the combined observations of all these people to be able to evaluate a child who may present in different settings with some of these symptoms of AD/HD. In addition, it is obvious that children with these symptoms present with noticeable behavior problems and need some type of intervention in order to be able to learn and develop like a normal child.

It is important to appreciate why stimulants are called stimulants and what effects they have on the brain. When society thinks of stimulants they often associate this term with drugs of abuse such as cocaine. Although, cocaine has some of the properties of stimulants there are important differences. The stimulants that are available for the treatment of AD/HD are Methylphenidate (Ritalin, Metadate, Methylin, Concerta), Amphetamine (Dexedrine, Dextrostat, Adderall). (Perrin 1038) There are many formulations of stimulants in order to provide products with different durations of action. Stimulants like methylphenidate and cocaine block the reuptake of the catecholamines dopamine and norepinephrine; cocaine also blocks serotonin (5-HT) uptake as well. These stimulants have an almost identical distribution in the brain and bind to the dopamine transporter (DAT) with similar affinity, although cocaine is eliminated from the brain faster than methylphenidate (making cocaine more addictive). Working by a slightly different mechanism, amphetamines displace monoamines from intraneuronal stores in a sodium-dependent process. (Anderson 237) Because stimulants cause an increase in these catecholamines, which are often deficient in children with AD/HD, they are quite effective. Stimulants such as methylphenidate, mixed amphetamine salts, dextroamphetamine and
pemoline are the most effective drug treatment options for AD/HD and their efficacy ranges from 70% to 96%. (DiPiro 1134)

The adverse effect profile of stimulants is usually one of the reasons why parents may be reluctant to choose this option for their children and view them as potentially unethical. The most common adverse effects of stimulants are decreased appetite-weight loss, stomachache, headache, insomnia, rebound symptoms and irritability-jitteriness. Managing the child’s stimulant regimen appropriately can control most of these side effects. The issues that parents and healthcare providers are commonly concerned with are the effects that are not certain and occur a small percentage of the time, but tend to be a lot more serious if they do occur. The first is retardation in growth, there are studies that have been conducted that prove that there is some growth-suppression in children treated with stimulants but a prospective follow-up study into adult life has found that there was no significant impairment of height attained. This study suggests that these children end up making up for the delay in growth later on in life. (Perrin 1038). These findings should be disclosed to parents in order for them to construct more educated decisions on the ethical use of stimulants when it comes to growth suppression.

There have been some small cases of sudden death in both children and adolescents receiving Adderall XR reported in 2005 by Health Canada, which would obviously strike an ethical view about its use. When further evaluations were made concerning these cases, it was found that there were no electrocardiogram changes in these children and the rate of sudden death in children on AD/HD medications did not exceed the base rate of sudden death in the general population. Currently, cardiac evaluation is not needed before starting these agents.
unless the child has previous existing cardiac disease. All this information should be given to parents when they are concerned with the ethical dilemma of giving their child with AD/HD stimulants since they should be making decisions based on studied facts rather than what is portrayed by society. (Pliszka 62)

Often parents would like to attempt cognitive behavior therapy in their child before using stimulants. We are now aware that AD/HD is a neurological deficit that is similar to other diseases such as tourettes and epilepsy. Furthermore, most people would agree that giving these children cognitive behavior therapy would be ridiculous and obviously unethical, but this is still accepted in children with AD/HD. It seems odd that parents are so adamant about giving children with AD/HD a trial with behavior therapy before trying reliable effective medication. When looking at the available data on cognitive behavior therapy, the MTA study did a good job in proving the benefit of medication therapy in children with AD/HD over cognitive behavior therapy alone. This study concluded that children who receive combined behavior therapy with medications and those who received medication alone had significant superior reduction in AD/HD symptoms as compared to children who received behavior therapy alone. (Henshaw 1077-1078) The behavior therapy that these children were receiving was far more superior to any of the therapies that AD/HD children would receive in a real life situation. Having this knowledge makes behavior therapy even more undesirable in today’s society where teachers are often dealing with too many children than they can handle and possibly more than one with AD/HD. At the same time, this disease is more prevalent in single parent families or lower socioeconomic class where there may not be a realistic amount of time to perform any type of effective behavior therapy, even if evidence suggested it to be equivalent to pharmacological
therapy. If we do know that behavior therapy is not as effective for these children compared to medication, it seems to be unethical to let these children deal with such a disorder on their own without proper available treatment.

AD/HD is becoming more popular in recent years and so has the use of stimulants in these children. It seems that physicians and parents are often taking the easy route by giving their child medication. But as we discussed above, stimulants may be the only effective treatment in these children and physicians are aware that prescribing these medications early on may give these children the aid they need to receive a normal educational experience. The issue is brought about when physicians are diagnosing children in their office after perhaps one visit and not making sure the child fits all the DSM-IV criteria previously discussed. It is obviously unethical to be giving misbehaving normal children stimulants when they do not have this disorder. It is the job of the physician to make sure that this is not the case, but since AD/HD is often presented with subjective data it is often difficult for physicians to never misdiagnose a child. The American Family Physician has published clinical guidelines for physicians to follow when diagnosing a child with AD/HD. A summary of these guidelines is shown in the flow chart in Figure 1. It would be ideal if all clinicians used this flow chart and new the DSM-IV criteria since they are incorporated into the chart, although it is obvious that all clinicians do not use these tools for all of their diagnosis.(Herrerias 1804) When these tools are not used properly this is when society has the right to believe that stimulant use may be unethical, because of the negligence of some physicians there are children given stimulants without the proper diagnosis. Physicians should also be following up on these children to verify that they have properly diagnosed the child and also that the child is getting the accurate strength of his or her
medication. It can take a month or longer to get these children on the best regimen to control their disorder effectively. Physicians can rely on algorithms such as the one shown in Figure 2 to be thorough with monitoring and adjusting. (Perrin 1035)

Teachers are usually the first people who tell parents about the potential of a problem in their child’s behavior. Parents often look to teachers to be experts in the area of AD/HD since they are the ones who encounter this disorder on a daily basis. When looking at the information that students in teacher’s college are learning and questioning them on the facts about AD/HD, it is not only evident that they are not experts but they do not even have the necessary information to give parents their view on how to treat these children. A simple questionnaire was given to some students who had been taught about AD/HD in their teacher’s college program. The questions asked were as followed:

1. Do children who are treated for AD/HD with stimulants have a greater risk of using illegal substances later on in life? Yes or No
2. Does behavior therapy have a better effect on these children then the use of stimulants? Yes or No
3. Would you recommend a parent put their child on stimulants? Yes or No
4. What would you say to parents who are considering putting their child on stimulants for AD/HD?

When looking at the responses from future teachers, it was obvious that they were not given accurate data or were not required to read any of the land-mark studies on AD/HD. For question one, all the students put yes, when in fact the guidelines for AD/HD state that children who have been treated with stimulants for AD/HD are less likely to abuse illegal substances later on in life
since they have been controlled for their disorder and are not still looking for an ‘out.’ (Katragadda 333) For the second question, eighty percent put that behavior therapy was better for these children, which would indicate that these students were not told to read the MTA trial or they would have been aware of its findings. For question three, seventy-six percent of the students said they would not recommend a child be put on a stimulant. With all the evidence that supports the benefits of stimulant use and the lack of evidence for any other therapy for these children you would think that teachers would not be discouraging their use but making parents aware of their efficacy to control this disorder. Question four had obviously varying responses, but most were similar to, ‘I would suggest behavior modification first, with some counseling and use stimulants as a last resort when the physician is completely certain that AD/HD is the diagnosis.’ Again, this would give parents a desire to not use stimulants for their children.

Teachers should be receiving adequate information on the use of stimulants in these children, since this small survey suggests they are involved in discouraging parents from providing their children with appropriate therapy and perhaps giving them false hope about the use of behavior therapy. If parents were told first hand by teachers that behavior therapy often is unsuccessful with most children who have a definite diagnosis of AD/HD but it can add to the therapy, parents may not have such great frustration with their children and themselves when these techniques do not work. It is clear that these students are not taught that AD/HD has been described like other psychiatric diseases such as epilepsy or tourettes, because most people would agree that giving appropriate therapy as a last resort would be unethical. We should also be thinking about the AD/HD child with abnormal brain function who is continuously frustrated because the lack of relief from symptoms of his/her behavior problems. Besides conducting this
simple survey, a textbook that student teachers use to learn about AD/HD and other childhood problems was examined. The chapter in this text that deals with children with AD/HD only contains one page regarding pharmacologically therapy for AD/HD while it includes eleven pages concerning behavior management. (Bennett 75-96) It would be predictable that teachers need to learn a great deal about behavior management techniques, since this is one of the only places they can intervene with these children, but at the same time, there was not one section about how stimulants work in a child with AD/HD. If these books are not going to give this information, these students should be instructed to read the landmark studies in this area so that they can get some valuable information before talking to parents about their children with AD/HD. An area that teachers should be most familiar with is how to recognize a child who portrays symptoms of AD/HD. This book provided a couple of the symptoms that are normally present but it did not provide these students with the DSM-IV criteria. (Bennett 75-96) If teachers were aware of the DSM-IV criteria they could have a more knowledgeable discussion with parents on whether their child should be considered for evaluation of this disorder. Since, teachers seem to be lacking so much knowledge in the area of this disorder it should be considered unethical for them to be giving any advice to parents on whether or not stimulants should be used. They are often times frightening parents into choosing other less effective options before they have all the facts.

The pharmacist is usually the last person the parents see before administering drugs to their child. It is usually at this time that parents express all the concerns that they have with the pharmacist and all the information that they have received from various sources. Parents are often looking for some confirmation of what either the physician has said or confirmation of
their fears so they can feel content with their initial decision not to treat their child. It is the pharmacists’ responsibility to disclose the side effects of these medications so that parents can look out for them but pharmacists should also be explaining to parents the evidence that has been found with this disorder. First they should confirm that this is a disorder of the brain that most often requires treatment. Let the parents know that stimulants are balancing out the disorder that these children have been diagnosed with. The pharmacist should encourage parents to discuss a behavior therapy plan with the teacher since this along with therapy has proven beneficial. Finally the pharmacist should have the parent come back to see them after a month or so of therapy to see how the child is doing. The child could be misdiagnosed and therefore the pharmacist can help parents identify this problem, or any other changes that may need to be made in the child’s therapy. The pharmacist should be taking a stand on whether it is ethical to give children stimulants, but they must do so considering all the data that is available, and provide this to parents, not purely their opinion. Like many ethical stands that exist, some people are for it and some people are against it but most people are in the middle and see the pros and cons for different situations. It is these pros and cons that pharmacists should be giving to parents so that they can make an ethical decision for their child.

Children are constantly learning about life everyday. They depend on those around them to guide them, protect and help them when needed. It is devastating to a parent when their child presents with a problem or disorder that may prevent them from being their best or fulfilling their dreams. Most parents would want to do anything they can to be able to allow their child to live a normal life without the challenges of a difficult disorder. It seems obvious then that when there is an effective treatment to a disorder, parents would be entirely willing to provide this therapy to
their children. This isn’t often the case with a child with AD/HD. Misconception in society, carelessness of physicians and lack of information in schools often leave parents confused when it comes to the use of stimulants in children. No parent wants to give his/her child drugs but no parent wants to see his/her child suffer through school. The ethical issue that surrounds the use of stimulants in children should be looked at as the issue of how physicians are diagnosing these disorders and how teachers are falsely educating parents. Stimulants are effective therapy when used properly in a definite AD/HD diagnosis and provide these children with the same opportunity as other children in the classroom. We should be more concerned about the children who are not receiving appropriate therapy and therefore living a life suffering from such a treatable disorder.
Figure 1: Evaluation of a child with ADHD

Primary care clinician should consider ADHD in a child presenting with any of the following concerns:
- Cannot sit still/hyperactive
- Lack of attention/ poor concentration/ does not seem to listen/daydreams
- Acts without thinking/impulsive
- Behavior problems
- Academic underachievement

Child 6 to 12 years of age with parent (or other caregiver) or teacher concerns about academic underachievement and/or specific behaviors

Clinic assesses these conditions during health screening

Assessment of the child by the primary care clinician includes:
- Standard history and physical examination
- Neurologic examination
- Family assessment
- School assessment

Family assessment includes:
- Documentation of specific elements by interview or use of ADHD-specific checklist of:
  - Inattention
  - Hyperactivity
  - Impulsivity
- Documentation should include:
  - Multiple settings
  - Age of onset
  - Duration of symptoms
  - Degree of functional impairment

School assessment includes:
- Documentation of specific elements:
  - Inattention
  - Hyperactivity
  - Impulsivity
- Use of teacher ADHD-specific behavior checklist (short form)
- Teacher narrative including:
  - Classroom behavior
  - Learning patterns
  - Classroom interventions
  - Degree of functional impairment
  - Evidence of school work
  - Report card
  - Samples of school work

Does child meet DSM-IV criteria for ADHD?

Yes

Are there symptoms of associated conditions?

No

Is there evidence of developmental variation or problem (DSM-PC) or alternative conditions?

Yes

Assess and treat

No

Reassess patient/patient concerns

Assess for coexisting conditions

Can presence of coexisting conditions be confirmed?

Yes

Diagnosis of ADHD and coexisting conditions

No

Diagnosis of ADHD

Educate parent/patient and treat

Meet ADHD criteria based on DSM-IV must include whether symptoms interfere with functioning and performance in more than one setting and last longer than 6 months.

Associated conditions (coexisting conditions) may include:
- Learning/language disorders
- Oppositional defiant disorder
- Conduct disorder
- Anxiety
- Depression
- Other conditions

(Herririas 1804)
Figure 2:

1. Child presents with diagnosis of ADHD
   - If School Psychologist, Diagnose and Evaluate the Child With Attention-Deficit Hyperactivity Disorder

2. Clinician, parent, child and teacher:
   - Identify target outcomes
   - Develop comprehensive treatment plan
   - Assess response to treatment plan

3. Is response to treatment plan adequate?
   - Yes: Clinician monitors outcome
     - Client should regularly provide systematic review of medication and therapy

4. Is child on appropriate medication?
   - Yes: Go to box 8
   - No: 11. Consider adding stimulant medication

5. Is response to additional stimulant adequate?
   - Yes: Go to box 6
   - No: 14. Is adherence to stimulant therapy or behavior therapy poor?

6. How all stimulant medications tolerated?
   - Yes: Go to box 12
   - No: 15. Consider another stimulant medication

7. Is adherence to stimulant therapy or behavior therapy poor?
   - Yes: Go to box 13
   - No: Go to box 17

8. Go to box 8

9. Go to box 9

10. Go to box 10

11. Go to box 11

12. Go to box 12

13. Go to box 13

14. Go to box 14

15. Go to box 15

16. Go to box 16

17. Go to box 17

18. Go to box 18

19. Exit guideline and seek appropriate treatment

20. Neuroimaging indicated?
   - Yes: Go to box 20
   - No: Go to box 21

21. Are targeted symptoms ameliorated?
   - Yes: Go to box 24
   - No: Go to box 22

22. Clinician considers addition of medications after all available have been tested

(Perrin1035)
References


