

# ADHD: Not Only for the Young



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Attention deficit hyperactivity disorder (ADHD) is well known and recognized as a condition of children and adolescents, which affects 5% to 8% of the school-aged population. However, long-term prospective follow-up studies have shown that 50% to 60% of children with ADHD continue to have symptoms of the syndrome in adulthood. More recently, a large epidemiological study of adults (10,000 subjects), conducted by Kessler, *et al* at Harvard University found that about 4% of the general population of adults studied had ADHD.

## Diagnostic difficulties

Difficulties in making the diagnosis of ADHD in adulthood are derived from three important factors:

1. The Diagnostic and Statistical Manual of Mental Disorders-Fourth Edition (DSM-IV) diagnostic criteria for ADHD are not developmentally appropriate for adults with ADHD as they were developed from field trials of children and adolescents. Thus, the following criteria are generally inappropriate for adults:
  - the type of symptoms listed,
  - the number of symptoms required and
  - the age of onset (before age seven years)
2. Adults with ADHD often find their symptoms egosyntonic and so do not see or report them accurately. However, getting reports from significant others

(*e.g.*, parents, roommates, coworkers, *etc.*) is often difficult and, at times, resisted by the adults being assessed

3. It is often difficult to determine if symptoms are due to a different condition or a condition comorbid with ADHD. Comorbidity increases with age and these comorbid conditions can often overshadow symptoms, making the diagnosis of ADHD difficult

## Comorbidity and differential diagnosis

In making the diagnosis of ADHD in adults, one needs to rule out other medical and psychiatric conditions. Medical conditions can include endocrinological abnormalities, such as:

- hyperthyroidism,
- hypothyroidism,
- hypoglycemia,
- brain lesions which can include:
  - *petit mal* epilepsy,
  - brain tumours,
  - microinfarcts,
  - substance use disorder and
  - problems with hearing or vision.

Psychiatric conditions, which need to be ruled out include:

- anxiety,
- depression,
- bipolar disorder,
- adjustment disorder,

- learning and language deficits and
- psychotic disorder.

One way of differentiating some of the psychiatric conditions, (e.g., anxiety, depression) from ADHD is that these other disorders:

- often have a later onset,
- tend to be episodic rather than continuous (like ADHD) and
- have a marked affective component of dysphoria and/or anxiety, which are generally absent in ADHD.

Furthermore, the psychotic features seen in bipolar disorder or psychosis are absent in ADHD.

The problem is somewhat more complex when these psychiatric conditions are comorbid with ADHD and tend to overshadow the ADHD.

## Diagnostic assessment

### History

The diagnostic assessment needs to include a detailed childhood history of ADHD or symptoms of other conditions, (e.g., anxiety, depression, etc.). This may need to be obtained from a parent or older sibling of the adult.

### Medical examination

A comprehensive medical examination is required to rule out the medical differentials outlined above and to evaluate the patient with regard to possible concerns of medication treatment (e.g., cardiovascular status, seizures, substance abuse, drug/drug interactions, etc.).

## Psychological evaluation and neuropsychological testing

None of these tests are diagnostic of ADHD but help to clarify the patient's general intellectual abilities. Possible testing options include:

- the Wechsler Adult Intelligent Scale (WAIS) to test a patient's academic achievements and
- the Wide Range Achievement Test (WRAT) to assess whether or not the patient has any learning disabilities.

Problems with IQ, academic achievement and

learning disabilities can result in difficulties at work and/or in educational settings. Thus, determining if these are problematic is important.

## Assessing impairment

In order to meet DSM-

IV diagnostic criteria, the patient not only has to rate six out of nine in hyperactivity, impulsivity, or inattentive symptoms, but these symptoms have to be persistent (ongoing for a long time), pervasive (present in several settings) and so severe that they cause significant clinical impairment in the patient's ability to function:

- socially,
- academically,
- emotionally, or
- in a work environment.

Thus, evaluating impairment is crucial.

*Long-term prospective follow-up studies have shown that 50% to 60% of children with ADHD continue to have symptoms of the syndrome in adulthood.*

Table 1

**Stimulants****Short-acting**

- Methylphenidate
  - Lasts for 3 hours to 4 hours
- Amphetamines
  - Lasts for about 4 hours to 5 hours

**Intermediate-acting**

- Methylphenidate, slow release
  - Lasts for about 5 hours to 6 hours
- Amphetamines (spansuls)
  - Last 6 hours

**Long-acting**

- Methylphenidate-based compounds
  - Lasting 10 hours to 12 hours
- Amphetamine-based compounds
  - Lasting 10 hours to 12 hours

## Treatment

Treatment can consist of medication and psychosocial intervention. For optimal results, both are used.

### Medication treatment

Medication treatment falls into two large groupings, stimulant medication and non-stimulant medication. Generally, stimulants are more effective and have a quicker onset of action than non-stimulants.

### Stimulants

Stimulants can also be divided into short-acting, intermediate-acting and long-acting, with methylphenidates and amphetamines being the major bases of compounds used (Table 1).

Compliance and coverage is better with the long-acting compounds. This is particularly helpful in treating adults who need longer coverage.

Side-effects of stimulants include:

- decreased appetite,
- headaches,
- stomach aches,
- increased BP and pulse pressure and
- possible development of tics or twitches.

Delayed onset of sleep is not uncommon. Generally, side-effects decrease with time and/or decreasing dose.

Most patients respond to both methylphenidate- and amphetamine-based compounds, but some patients will only respond preferentially to one or the other compound. So a trial of the other type of stimulant is always warranted if one does not work well (see the 2006 Canadian ADHD Resource Alliance Guidelines for dose ranges).

### SNRIs

Atomoxetine, a selective norepinephrine reuptake inhibitor (SNRI), has been shown to be effective for ADHD symptoms in adults, as well as in children and adolescents. It is less effective than stimulants and takes four weeks to six weeks before significant effects can be seen. This SNRI needs to be given slowly, starting at 0.5 mg/kg q.d. for two weeks, then increased to 0.8 mg/kg q.d. for two weeks to a maximum of 1.2 mg/kg q.d. or a maximum of 100 mg/kg q.d. This slow titration will also identify the 7% to 10% of the population who are slow cytochrome metabolizers. Generally, patients who do not respond to stimulants or

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who have significant side-effects, as well as those with significant tics or anxiety, may benefit from atomoxetine.

Side-effects of atomoxetine include:

- BP and pulse pressure increases,
- nausea,
- somnolence and
- sexual side-effects.


This drug is cleared via the cytochrome system, so other medications using this metabolic pathway may interact with it (e.g., paroxetine, fluoxetine, quinidine).

#### *Other medications*

Other medications that can be used by adults with ADHD, but that are generally not as effective as stimulants, are desipramine and bupropion. Modafinil and guanfacine are still being investigated.

#### *Psychosocial interventions*

The following interventions also need to be considered in treating adults with ADHD:

- cognitive behavioural therapy,
- organizational skills,
- social skills training support groups,
- individual psychotherapy,
- academic remediation and
- coaching. 

#### Reference

1. Kessler Rc, Adler LA, Barkley R, et al: Patterns and predictors of attention deficit hyperactivity disorder persistence into adulthood: Results from the national comorbidity survey replication. *Biol Psychiatry* 2005; 57(11):1442-51.



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