PHARMACOLOGIC TREATMENT OF Attention Deficit Hyperactivity Disorder

The diagnosis of attention deficit hyperactivity disorder is standardized into types including inattentive, hyperactive, and combined, per the Diagnostic and Statistical Manual of Mental Disorders, applicable to all ages. Individuals with ADHD have increased risk for substance abuse (Biederman, Wilens, written communication, March 2005); traffic violations; and comorbidities consisting of oppositional defiant disorder, enuresis, major depression, multiple anxiety disorders, conduct disorder, and bipolar disorder (about equal to the general population)5.

Contrary to statements concerning brain development in these individuals:

- “Genetic and or early environmental influences... in ADHD are fixed, nonprogressive, and unrelated to stimulant treatment”6.
- Imaging studies from group data confirm that abnormalities in frontosubcortical networks (fails to activate) are associated with ADHD.4
- Comparative genetic studies indicate the following: panic disorder = 50%; schizophrenia = 70–80%; ADHD = 75%.

The mechanisms of action of stimulants involve reuptake inhibition of dopamine and norepinephrine transporter proteins (they are in excess in ADHD, leading to excessive reuptake of these catecholamines, resulting in metabolism and thus deficiencies of these compounds)6.

Psychopharmacological treatment of ADHD includes:

1. Stimulants (methylphenidate, primarily dopamine; mixed amphetamine—both dopamine and norepinephrine). Studies via PET scans and psychological testing (CGIS-T) are indicative of their efficacy.
2. Atomoxetine (selective norepinephrine reuptake inhibitor). Controlled placebo studies with p<.001 per Michelson D., et al.9
3. Antidepressants (bupropion or TCAs).
4. Anti-narcoleptics (modafinil).
5. Alpha-2 adrenergic receptor stimulants (guanfacine).

Commonality of 1) through 5) is dopaminergic or noradrenergic mechanism of action. Of course, there are numerous adjunctive and augmentative treatments, including nutrition, corrective learning, and other behavioral therapeutic approaches.

References

6. Massachusetts General Hospital, Department of Psychiatry, Division of Postgraduate Education.

— Jerald H. Ratner, MD, PA, FAAIM

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