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Cognitive therapy as an alternative to ADHD drugs Training the Brain

By Gunjan Sinha In Focus - July 11, 2005

To medicate or not? Millions of parents must decide when their child is diagnosed with attention-deficit hyperactivity disorder (ADHD)--a decision made tougher by controversy. Studies increasingly show that while medication may calm a child's behavior, it does not improve grades, peer relationships or defiant behavior over the long term.

Consequently, researchers have focused attention on the disorder's neurobiology. Recent studies support the notion that many children with ADHD have cognitive deficits, specifically in working memory--the ability to hold in mind information that guides behavior. The cognitive problem manifests behaviorally as inattention and contributes to poor academic performance. Such research not only questions the value of medicating ADHD children, it also is redefining the disorder and leading to more meaningful treatment that includes cognitive training.

"This is really a shift in our understanding of this disorder from behavioral to biological," states Rosemary Tannock, professor of psychiatry at the University of Toronto. Tannock has shown that although stimulant medication improves working memory, the effect is small, she says, "suggesting that medication isn't going to be sufficient." So she and others, such as Susan Gathercole of the University of Durham in England, now work with schools to introduce teaching methods that train working memory. In fact, working-memory deficits may underlie several disabilities, not just ADHD, highlighting the heterogeneity of the disorder.

"Working memory is a bottleneck for everyday functioning independent of what category you fit into," comments Torkel Klingberg, a neuroscientist at the Karolinska Institute in Stockholm. Based on Klingberg's research, Karolinska founded Cogmed--a biotech company that has developed a software program to train working memory. In a recent paper in the *Journal of the American Academy of Child and Adolescent Psychiatry*, Klingberg reported that 60 percent of 20 unmedicated ADHD children no longer met the clinical criteria for ADHD after five weeks of training. The company has already rolled out its training service in Sweden and Germany, and Karolinska is collaborating with New York University to launch a clinical trial with ADHD kids later this year.

"It's intriguing data," Tannock remarks. "The emphasis is on visual-spatial memory, which is where we find the strongest link to inattention and ADHD. But they have to go further. You want to show that training improves ability on a range of tasks, not just holding information."

That ADHD children would respond to cognitive training does not surprise experts such as Lawrence H. Diller, a child psychiatrist and author of Running on Ritalin. "Hyperactivity and inattention are bell-shaped spectrum disorders," he says. "The majority of kids who are getting medication are borderline normal versus abnormal." In Diller's experience, the former benefit the most from nonpharmaceutical training approaches. Medication has been overemphasized by a pharmaceutical and medical industry "that has changed people's view of themselves," he continues. "Personal responsibility has taken a backseat to lifelong disorders."

Moreover, because there is no industry to back it, behavioral therapy has been grossly underrated, Diller and others opine. Unpublished data from the Multimodal Treatment Study--the largest U.S. long-term study of ADHD treatment in children--show that after two years, kids treated with behavioral therapy only (parent training, school intervention and a special summer camp program) functioned just as well as kids on high-dose medication, says lead researcher William Pelham of the University at Buffalo. Also, only an additional 8 percent of the children in the behavioral arm were medicated at the end of the second year, indicating that most parents in this group were satisfied with behavioral therapy.

This two-year outcome contrasts with the study's end results after 14 months, which suggested that behavioral therapy was somewhat less beneficial compared with high-dose medication. Although most experts advocate combining behavioral therapy with medication when necessary, medication is often the only option offered. "Parents need to know that there are alternative treatments," Pelham states.

The ability to tame symptoms via behavioral therapy and training suggests that many ADHD children may not need drugs. But both behavioral therapy and working memory training require diligence and patience from parents, teachers and therapists. That's not easy for a time-crunched society and far more laborious than popping a pill.