Direct Assessment of the Cognitive Correlates of Attention Deficit Disorders with and Without Hyperactivity

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The cognitive functioning of children identified as attention deficit disorder with hyperactivity (ADD/H) was compared to that of children identified as attention deficit disorder without hyperactivity (ADD/WO). Based on information on symptoms supplied by teachers, 20 ADD/H and 15 ADD/WO children were selected according to DSM-III criteria from a large elementary-school learning disabilities and behavior disorders population. For comparison purposes, 16 normal children from regular classrooms were also selected. Children from all three groups were evaluated with a battery of cognitive tests. Intelligence test scores differentiated the two ADD groups, with the ADD/H children obtaining significantly lower Full Scale IQ scores than both ADD/WO and control children. In addition, ADD/H children obtained significantly lower Verbal IQ scores than ADD/WO children. Both ADD groups performed more poorly than controls on Spelling and Reading Achievement, and the ADD/WO group performed more poorly on Math Achievement. The two ADD groups took longer to complete six Stroop and rapid naming tasks than the control groups but did not differ among

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themselves. The ADD/WO group made more errors on a visual matching task than the controls, but neither ADD group differed from controls on the accuracy of the Stroop tasks, rapid naming tasks, measures of receptive and expressive language, visual–motor integration, or sustained visual attention. The differences between the two ADD groups were fewer than expected on the basis of previous research and are more global than specific.

KEY WORDS: attention deficit disorder with hyperactivity; attention deficit disorder without hyperactivity; sustained attention; cognitive deficits.

INTRODUCTION

Although controversy over the defining characteristics of hyperactivity has persisted for the past several decades, the most notable recent attempt to reconceptualize this disorder was reflected in the third edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-III) (American Psychiatric Association, 1980). Based on the observation that hyperactive children almost always display prominent attention problems (Spitzer & Cantwell, 1980), the DSM-III replaces the DSM-II diagnostic category of hyperkinetic reaction with the new category of attention deficit disorder (ADD). The excessive activity level traditionally attributed to these children is given only secondary importance in the DSM-III, as demonstrated by the division of ADD into subtypes of ADD with hyperactivity (ADD/H) and ADD without hyperactivity (ADD/WO). The ADD/H subtype requires the diagnosis of symptoms of attention deficits, impulsivity, and motor hyperactivity and is nearly identical in criteria to the DSM-II category of hyperkinetic reaction. Thus, it would appear that most of the existing research on “hyperactivity” is relevant to the ADD/H subtype. The ADD/WO subtype, which requires the diagnosis of only symptoms of attention deficits and impulsivity, apparently has no DSM-II equivalent.

Consistent with previous hyperactivity research, recent studies that have examined the ADD/H subgroup suggest that these children frequently display aggression (Edelbrock, Costello, & Kessler, 1984; Lahey, Schauhency, Strauss, & Frame, 1984), and conduct disorders and are socially rejected (Edelbrock et al., 1984; King & Young, 1982; Lahey, Schauhency, Strauss, & Frame, 1984). In contrast, the emerging evidence about the new ADD/WO subtype characterizes this subgroup as being sluggish, shy, anxious, and socially withdrawn (Edelbrock et al., 1984; Lahey, Schauhency, Strauss, & Frame, 1984). Thus, preliminary research appears to indicate that the two ADD groups differ substantially in their behavior patterns.

One area of ADD research that has been almost entirely neglected involves the cognitive functioning of ADD/H and ADD/WO children, although there is evidence to suggest that both subtypes may display cognitive deficits.