exists in adults, he made the erroneous statement that "predicting long-term outcome is not possible at this time"[1(p450)] and referred to a review of long-term outcomes in hyperactive children.[2] This ignores recent literature that states that one third to one half of children with ADHD continue to show symptoms into adulthood.[3,4] Furthermore, a study by Biederman et al[5] found that the disorder in adults follows the same patterns of demographic, psychosocial, psychiatric, and cognitive features well documented in children with ADHD. I and my colleagues have experienced an increase in the number of adult patients who either believe they are undiagnosed or who carry a diagnosis of ADHD from childhood.

My clinical experience and review of the literature suggests that the following pharmacological management of ADHD in adults is appropriate. Psychostimulants, such as dextroamphetamine, methylphenidate hydrochloride, and pemoline, as well as tricyclic antidepressants, such as imipramine hydrochloride and desipramine hydrochloride,[6,7] have been used in adults as well as children. In addition, combination therapy of psychostimulants and nadolol have been tried with success in adults previously resistant to psychostimulant therapy alone.[8] Buproprion hydrochloride has been offered as an alternative to stimulants.[9] Fluoxetine was mentioned as a possible therapy as well.[10]

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In reply

Attention-deficit hyperactivity disorder continues into adulthood, but its prevalence, spectrum, and management are unclear. It is important to remember that, in the review of the long-term outcome of ADHD by Klein and Mannuzza,[1] all the studies involved children who had been referred for evaluation and treatment by specialists. Children referred because of the severity of their symptoms are different from other children with the same diagnosis who are not referred. A review of the long-term outcomes of children with febrile seizures demonstrated that fact clearly.[2] Nonfebrile seizures later developed in 1.5% to 4.6% of children with febrile seizures identified in prospective population-based studies. In contrast, among children with febrile seizures referred for specialist care and then followed up prospectively, between 2.6% and 76.9% later had nonfebrile seizures. As Ellenberg and Nelson[2] stated, "The differences in levels of risk reported from the two study types are impressive, but more impressive still is the consistency of the population-based studies contrasted to the notable diversity among the clinic-based studies."

Long-term follow-up studies of children referred for treatment of ADHD have shown a high prevalence not only of persistent ADHD symptoms, but also symptoms of antisocial disorders and illicit drug abuse.[3] However, one of the requirements for enrollment in the study by Mannuzza et al,[3] for example, was that the children "had to have . . . been referred by teachers because of behavior problems."

With that inclusion criterion, it is not surprising that one third of these children had antisocial disorders as adults. We should be cautious when we generalize from specialty clinic–based studies to patients with ADHD whom we see in primary care settings. At this time, we simply do not have the data we need to be able to predict the long-term outcome of ADHD in the children we see in primary care settings.

Biederman et al[4] compared two groups of adults with ADHD. One group had received the diagnosis of ADHD in childhood, and the other group consisted of adult relatives of children with ADHD who themselves had symptoms of ADHD but who did not have previous diagnoses. The outcomes of the two groups were essentially identical, suggesting that there may be many adults with ADHD who do not have a diagnosis. However, since the samples were identified through referrals to a specialty clinic for children with ADHD, the findings do not provide population-based demographic or psychosocial data about adults with ADHD and, therefore, should be applied to patients seen in primary care practices cautiously, if at all.

Unfortunately, most of the studies of the treatment of residual ADHD in adults have been case series[5,6] or uncontrolled clinical trials.[7-9] The two most recent controlled clinical trials reached opposite conclusions with remarkably similar study designs.[10,11] Each recruited adults from outpatient psychiatric clinics who had current symptoms suggestive of ADHD and a retrospective history consistent with childhood ADHD. They studied similar numbers of subjects with a retrospective history consistent with childhood ADHD, 37 (Wender et al[10]) and 29 (Mattes et al[11]). Each study used similar baseline and outcome measures. They used similar doses of methylphenidate hydrochloride, an average of 43.2 mg/d[10] and 48.2 mg/d.[11] However, Wender et al[10] concluded that "a moderate-to-marked therapeutic response occurred in 21 (57%) of the patients while

receiving methylphenidate and in four (11%) while receiving placebo, a highly significant difference statistically and clinically." In contrast, Mattes et al[11] concluded that:

No overall benefit from methylphenidate was evident, regardless of childhood history of ADD-H [attention-deficit disorder with hyperactivity]. Approximately 25% of the sample appeared clinically to benefit from methylphenidate. . . . Even among the responders, benefit was generally not as marked nor as clinically valuable as in childhood ADD-H.

We need to define the prognosis of ADHD as seen in primary care and the spectrum of adverse outcomes in a way that is generalizable to primary care practice. Further controlled clinical trials are needed to define the appropriate pharmacological and psychological treatment of ADHD in adults, as well as in children, and to identify which treatments in children with ADHD lead to improved outcomes in adulthood.

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