In the long run, skills are as good as pills for attention deficit hyperactivity disorder

Joseph M Rey

The need for stimulant treatment must be assessed regularly

In a United States legal action in 2000 about educational neglect, Albany County judge G E Maney ordered the parents to resume administering methylphenidate to 7-year-old Kyle Carroll.[1] At the time, this controversial ruling was understandable, because controlled trials of stimulant treatment (dexamphetamine and methylphenidate) for attention deficit hyperactivity disorder (ADHD) had consistently shown that stimulants reduce ADHD symptoms. The catch is that trials have examined short-term effectiveness (usually over less than 6 months), while ADHD is a chronic condition.

In 1992, the US National Institute of Mental Health funded the Multimodal Treatment Study of Children with ADHD (MTA) to examine the long-term effects of routine community management versus carefully delivered treatments. Children with ADHD, combined type (that is, showing symptoms of inattention, impulsivity and hyperactivity), were randomly allocated to medication, psychosocial treatment, a combination of both, or standard community care. The medication group received treatment with methylphenidate in which an optimal dose was titrated, with blinding, to achieve maximum benefit. The psychosocial group received a variety of interventions that consisted of parent training, a summer treatment camp and classroom management. Those in the routine care group were given information about services and left to their own devices. In total, 579 children with a mean age of 8.5 years were randomly allocated to the four groups, about 145 in each. After 14 months, children in both the medication groups showed greater improvement than those in the behavioural treatment and community care groups, leading the authors to conclude that "carefully crafted medication management was superior to the behavioral treatment and to routine clinical care that included medication".[2] The results were influential in treatment guidelines[3] and clinical practice.

Participants were naturalistically followed up 1 and 2 years after the end of the trial. The results of the last follow-up (3 years from the onset of treatment), of 84% of the original sample of children (then aged 10–13 years), showed that none of the treatment groups differed on any of the five clinical and functional outcomes (parent- and teacher-rated ADHD and oppositional symptoms, reading achievement scores, social skills, and functional impairment).[4] Also, there were no differences in substance use or delinquency, with the exception of a slightly lower rate of substance use among those in the psychosocial treatment group.[5] While improvement had been steepest during the first 14 months (mostly in the methylphenidate group), this levelled off, and at 3 years, all groups showed a similar improvement; the methylphenidate group had not deteriorated but the other groups had caught up.[4]

Speculation is bound to follow these results, which have many ambiguities and nuances. For example, this follow-up was not part of the controlled trial and, as happens in practice, children switched on and off their medication over time in the various groups, with consequent difficulties for analysis and interpretation. The results highlight several issues. First, it suggests the Rolls-Royce model (medication *plus* psychosocial treatment involving the child, family, and school) is *not* more effective in the long run than any of the other treatments, including the often maligned community care. The combined treatment is seen as the ideal, but is rarely delivered in practice, because of high cost and the burden for parents and schools.[6] Second, there seems to be a "growing out of" or developmental factor at work. Epidemiological[7] and follow-up[8] data have consistently reported a reduction in ADHD symptoms with increasing age — although some individuals continue to show problems. This is also consistent with findings that brains of children with ADHD, rather than developing abnormally (as in autism), *mature later*.[9] The MTA did not include a placebo group, which might have led to the conclusion that regression to the mean or maturation itself were the reasons for improvement. If that was the case, it is possible that helping families and schools contain children's ADHD behaviour during the middle and late primary school years with minimal interventions (eg, parent management training) may be enough for a proportion — but not all — of these children to get better, or for medication to be required mostly during this developmental period. Finally, the MTA confirmed that medication can cause retardation of growth, including weight, particularly during the first year of treatment.[10]

While results of one study rarely justify drastic changes of practice, the findings underscore the complexity of ADHD, show that stimulant drugs are far from being a silver bullet, and that there is much that we do not yet know. This does not mean that stimulants no longer have a place in the treatment of ADHD. However, that place has shrunk, and clinicians should be circumspect when assessing the need for ongoing treatment (eg, through medication breaks). Much needs to be done to clarify who benefits the most from medication, at what developmental point stimulants are most useful, and for how long they should be taken. It is also not known whether these results apply to the slow-release formulations (which may enhance adherence) and to atomoxetine (a non-stimulant drug with antidepressant activity, which is thought to act by inhibition of the presynaptic noradrenalin transporter).

Parents, often caught in the bind of concerns about their children taking medication and fear of the consequences of not treating them, might be comforted by these findings. One wonders whether Judge Maney would have issued the same order to Kyle Carroll's parents had he been aware of this information.

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