

Review: extended stimulant medication is effective in children with attention deficit hyperactivity disorder

Schachar R, Jadao AR, Gault M, et al. *Attention-deficit hyperactivity disorder: critical appraisal of extended treatment studies*. *Can J Psychiatry* 2002;47:337–48.

QUESTION: In children with attention deficit hyperactivity disorder (ADHD), are pharmacological and non-pharmacological treatments of ≥ 12 weeks duration effective?

Data sources

Studies were identified by searching Medline, CINAHL, HealthSTAR, PsycINFO, EMBASE/Excerpta Medica, the *Cochrane Library*, reference lists, and personal files.

Study selection

Randomised controlled trials (RCTs) evaluating treatment for ≥ 12 weeks in children with ADHD were selected if they were full reports published in any language in peer reviewed journals.

Data extraction

2 reviewers independently extracted data on each of the treatment groups, tests used in each study, and outcomes (behaviour symptoms, academic performance, social behaviour, and internalising symptoms). Differences were resolved by consensus. The quality of study methods was assessed (minimum score 0, maximum score 5).

Main results

14 RCTs (1379 participants, 42% in 1 RCT) met the selection criteria. The quality of study methods was low (mean quality score 2.3 out of 5). *Behaviour symptoms:* methylphenidate was superior to placebo in 4 of 6 RCTs and to thioridazine in 1 RCT and was equivalent to imipramine in 1 RCT. Medication management was equivalent to combined medication and behavioural intervention; both of these interventions were better than behavioural therapy alone or assessment and referral to care in the community (1 RCT). Biofeedback was superior to no treatment (1 RCT), and cognitive behavioural therapy was superior to supportive therapy (1 RCT). *Academic performance:* combined treatment was superior to community care and behavioural treatment but not to medication management; medication management did not differ from community care and behavioural treatments for academic outcomes (1 RCT). Methylphenidate with or without thioridazine had a greater effect than thioridazine alone (1 RCT). Treatment with electroencephalographic biofeedback led to better results on an intelligence test than did a waiting list control (1 RCT). *Social behaviour:* 6 of 9 RCTs showed a benefit for either methylphenidate or dextroamphetamine rather than for the addition of parent training, thioridazine, or behavioural treatment. Medication management was equivalent to combined therapy, and both were superior to behavioural treatment alone and to community care; combined treatment led to more improvements in oppositional or aggressive symptoms, teacher rated social skills, and parent-child relationships

(1 RCT). *Internalising symptoms:* 1 RCT showed that cognitive behavioural therapy led to an increase in self esteem. 1 RCT showed that combined treatment reduced parent rated anxiety more than medication management or behavioural therapy; medication management was superior to behavioural therapy for the improvement of internalising symptoms. Behavioural therapy was better than community care for children with ADHD and comorbid anxiety (67% of whom received medication).

Conclusions

In children with attention deficit hyperactivity disorder, stimulant medication is effective for reducing ADHD symptoms, dysfunctional social behaviour, and internalising symptoms. Evidence for non-pharmacological treatments is limited.

Source of funding:
Agency for Health Care
Policy and Research.

For correspondence:
Dr R Schachar,
Division of Child and
Adolescent Psychiatry,
The Hospital for Sick
Children, Toronto,
Ontario, Canada.
russell.schachar@sickkids.on.ca

COMMENTARY

Pharmacological interventions, especially stimulant medications, are widely used in treating ADHD. The systematic review by Schachar *et al* concludes that there is a lack of sound research upon which to base decisions about extended ADHD interventions (whether pharmacological, non-pharmacological, or a combination of both). Little research has been done on non-pharmacological interventions (such as behavioural or cognitive behavioural interventions) in the management of ADHD. This is particularly important given that, in the UK, stimulant treatment should be seen as an adjunct to non-pharmacological interventions.¹

For practitioners, these conclusions are, on first sight, disappointing and of limited usefulness. Examining the reasons for the conclusions, however, does generate some implications for practice. Firstly, the lack of studies involving non-pharmacological interventions is an open invitation to practitioners using innovative, non-pharmacological ADHD interventions to publicise (with a view to evaluation) their practices. Secondly, few RCTs were deemed to be of high quality. This provides, as Schachar *et al* suggest, some impetus for debate on whether the RCT is the best design for evaluating the effectiveness of extended ADHD interventions. Many of the methodological difficulties arise from issues in clinical practice, including treatment dropout, crossover to alternative treatment, and non-adherence. Alternative study designs are required that reflect clinical realities. For example, Schachar *et al* suggest that large numbers of treated and untreated patients be observed to develop explanations of patterns of adherence and improvement. Finally, the wide variety of outcome measures used (25 in the 14 studies selected) suggests the need for a consensus—that includes input from all stakeholders (ie, children with ADHD, parents, clinicians, childcare professionals, and researchers)—on the outcomes used to evaluate the effectiveness of ADHD interventions.

Steven Prymachuk, RMN, RNT, MSc
Nurse Teacher/Research Associate
School of Nursing, Midwifery and Health Visiting
University of Manchester
Manchester, UK

1 Lord J, Paisley S. *The clinical effectiveness and cost-effectiveness of methylphenidate for hyperactivity in childhood*. Version 2. London: National Institute for Clinical Excellence, August 2000.