INTRODUCTION
ADHD is the most common mental health disorder of childhood, affecting 2–5% to 9% of the population, one of the most common problems in special education, and arguably the most common source of disruptive behavior in regular classroom settings. Nearly 5% of school-aged children in the U.S. are medicated daily for treatment of ADHD—primarily in school settings. The two evidence-based treatments for ADHD are pharmacotherapy with a CNS stimulant and behavior modification in the form of parent training, classroom intervention, and child treatment for peer problems (Fabiano et al., under review; Pelham et al., 1998; Pelham & Fabiano, in press). Short-term studies have shown that combining these treatments often results in improved functioning relative to either alone. In a current project (R01 MH62945), we have shown that both behavior modification and medication have significant effects on children’s behavior, and that response to each treatment varies as a function of the presence and dosage of the other treatment. We have found (a) that behavioral treatments can reduce the need for and dosage of medication in analogue classroom settings and regular classroom settings (e.g., Cokes et al., 2004) and (b) that low doses of medication reduce the need for relatively more intensive and therefore more expensive behavioral treatments. Because behavior modification—especially at high doses—has associated acute and long-term safety issues, discovering ways to minimize medication use and dose for classroom disruption—perhaps the primary justification for medication—is critical. However, in the extant literature the two treatments are almost always implemented concurrently whether needed or not—studies have addressed questions facing schools, practitioners, and families in making treatment decisions for individual children, that is, (a) whether it is better to initiate treatment with medication or behavior modification, (b) whether in a child with inadequate response it is better to escalate dosage of the current modality or add the other modality, and (c) what are the safety and cost-effectiveness tradeoffs associated with such answers? This IES-funded study is an attempt to form a controlled (random assignment) examination over 3 cohorts of treatment sequencing. It includes elements of an adaptive treatments design with multiple randomizations (Colins et al., 2004; Bierman et al., 2006). We present preliminary results for cohort 1. Specific aims: 1) How does a treatment strategy that includes either initial treatment with medication or initial behavior modification influence the rate of response to treatment and need for additional treatment? 2) When additional treatment is needed, what are the relative benefits of augmenting the dosage of the initial treatment versus adding the other modality? 3) Is dosage in medication usage reduced as a function of treatment strategy? 4) Is intensity of behavior modification reduced as a function of treatment strategy? 5) Do these strategies differentially impact parent satisfaction with treatment and future use of treatments? 6) In what way do individual difference variables (e.g., severity of impairment, comorbid child psychopathology, prior medication history, parent and teacher treatment acceptability, parent marital characteristics, SES) influence the answers to questions addressed above? 7) What is the relative cost-effectiveness of these treatment strategies?

Baseline/Endpoint Measures

Child Behavior
Diagnostic Interview Schedule for Children (DISC) (Shaffer et al., 2000)
Discrictive Behavior Disorders (DBD) Rating Scale (Pelham et al., 1992)
IOWA Conners Scale (Loney & Milich, 1982; Pelham et al., 1989)
Child Behavior Checklist (Achenbach, Rezis et al., 2001)
Social Skills Rating System (SSRS) (Gresham & Elliott, 1989)
Impairment Rating Scale (IRs, Fabiano et al., 2006)

Academic Achievement
Wechsler Intelligence Scale for Children—4th edition (WISC-IV; Wechsler, 2003)
Wechsler Individual Achievement Test—2nd edition (WIAT-II)

Treatment use and acceptability
Parents and teacher ratings of typical behavioral interventions (Fabiano et al., 2002)
Parents and teacher ratings of treatment acceptability (e.g., Kazzam, 1984)

Parental psychopathology and parenting

ADHD (CARS; Conners et al., 1999) and depression (BDI; Beck et al., 1961); Negative/Ineffective parenting styles (Hinshaw et al., 2000); Parenting Sense of Competence (Gibbual et al., 1979)

Monthly Assessments on which Adaptive Modifications are based

Parent and teachers: DBD, IOWA Conners, IRS, SDI, Quality of Life
Daily behavioral Target Behavior Checklists (ITBC) as objective measures of classroom behavior
Naturalistic measures of performance and behavior including grades, homework, discipline

Treatment satisfaction
Parents: negative/Ineffective parenting, the CAARS, the BDI, and the PSC

Indicators of need for additional treatment at 3 to 8-week Time periods
(1) Average school performance on the ITBC is less than 75% ANOVA
(2) Rating by parents or teachers as impaired (i.e., greater than 3) on the IRS in at least one domain.

Discussions

• This study is one of the first to investigate the sequencing of evidence-based treatments for children with ADHD in school settings.
• This study also investigates dose of treatment (both modalities) in an innovative adaptive treatment design.

No 30,000-59,999 27% 60,000-99,999 41% 100,000+ 14%

Acknowledgments

Thanks to Edward Chang, Wei-Wei Zhu, R. Carl Freund, and many others for their contributions. This work was supported by the National Institute of Mental Health (MH 069656 and MH 080693). The authors declare no conflicts.

References


April 2014

Poster and additional information available at ccf.buffalo.edu

Participant Characteristics of Cohort 1

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Cohort 1</th>
</tr>
</thead>
<tbody>
<tr>
<td>N</td>
<td>56</td>
</tr>
<tr>
<td>Gender</td>
<td>73% boys</td>
</tr>
<tr>
<td>Family composition</td>
<td>55% single parent, 45% two parent</td>
</tr>
<tr>
<td>Race</td>
<td>Caucasian 80%, African-American 11%, Hispanic 9%</td>
</tr>
<tr>
<td>Ethnicity</td>
<td>Hispanic/Latino 2%, Not Hispanic/Latino 98%</td>
</tr>
<tr>
<td>Income</td>
<td>&lt;$20,000 18%, $20,000-29,999 35%, $30,000-59,999 27%, $60,000-99,999 21%, $100,000+ 14%</td>
</tr>
</tbody>
</table>

Preliminary Results from Cohort 1

Participants: 56 children between the ages of 5 and 12 enrolled.

Treatment:
Of 30 participants assigned to receive medication first, 10% refused medication.
Of 26 participants assigned to receive behavioral treatment first, 4% attended 2 or fewer of 8 assigned parent training sessions.

Four families discontinued participation during the study.
73% of children in the Behavioral Treatment First group were rerandomized at the first 8-week assessment point.
67% of children in the Medication First group were rerandomized at the first 8-week assessment point.

End of October

May-June

June

July

August

End of Year

Assess functioning:
- Assess functioning:

Publications


Supplementary file