Effects of Evening Dose of Immediate Release Methylphenidate on Sleep in Children with ADHD

This study is not yet open for participant recruitment. (see Contacts and Locations)

Verified December 2015 by Milton S. Hershey Medical Center

Sponsor:
Milton S. Hershey Medical Center

Collaborator:
Children's Miracle Network

Information provided by (Responsible Party):
Raman Baweja, Milton S. Hershey Medical Center

ClinicalTrials.gov Identifier:
NCT02638168

First received: December 15, 2015
Last updated: December 18, 2015
Last verified: December 2015

Purpose
Over 10% of children in the United States are diagnosed with ADHD, and nearly half of these children have moderate to severe impairments in sleep, further exacerbating their already impaired academic, emotional and social functioning. In children with ADHD, 34% of prescribed sleep medications are antipsychotics that can cause marked weight gain and metabolic changes; alternate medications have either been found to be ineffective, difficult to tolerate or are largely unstudied in youth. Delayed sleep onset is strongly correlated with active symptoms of ADHD and Oppositional Defiant Disorder (ODD), suggesting that better control of disruptive behaviors could improve sleep patterns and this application will assess if the extension of the therapeutic effects of CNS stimulants into the early evening improves sleep onset.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Intervention</th>
<th>Phase</th>
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<tbody>
<tr>
<td>Attention Deficit Disorder With Hyperactivity</td>
<td>Drug: Immediate Release Methylphenidate</td>
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<tr>
<td>Behavioral Insomnia of Childhood</td>
<td>Drug: Placebo</td>
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Study Type: Intervenional

Study Design: Allocation: Randomized
Endpoint Classification: Efficacy Study
Intervention Model: Crossover Assignment
Masking: Double Blind (Subject, Caregiver, Investigator)
Primary Purpose: Treatment

Official Title: Effects of Evening Dose of Immediate Release Methylphenidate on Sleep in Children With Attention Deficit Hyperactivity Disorder: A Randomized Placebo-controlled Pilot Study

Resource links provided by NLM:

MedlinePlus related topics: Attention Deficit Hyperactivity Disorder

Drug Information available for: Methylphenidate Methylphenidate hydrochloride

Genetic and Rare Diseases Information Center resources: Children's Interstitial Lung Disease

U.S. FDA Resources

Further study details as provided by Milton S. Hershey Medical Center:

Primary Outcome Measures:

- duration of time in bed until sleep measured in minutes (Sleep onset latency; SOL) as reported on the parent completed sleep log [ Time Frame: 3 weeks ] [ Designated as safety issue: No ]

Secondary Outcome Measures:

- Sleep onset latency (SOL), defined as time in bed until sleep, will be measured by sleep log vs. actigraphy as sleep logs [ Time Frame: 3 weeks ] [ Designated as safety issue: No ]
- Pittsburgh Side Effects Rating Scale (PSERS) to evaluate adverse reactions to MPH [ Time Frame: 3 weeks ] [ Designated as safety issue: Yes ]
- Sleep offset, [ Time Frame: 3 weeks ] [ Designated as safety issue: No ]
- Total sleep time [ Time Frame: 3 weeks ] [ Designated as safety issue: No ]
- Wake after sleep onset (WASO) [ Time Frame: 3 weeks ] [ Designated as safety issue: No ]
- Sleep efficiency [ Time Frame: 3 weeks ] [ Designated as safety issue: No ]
- Number of wakings [ Time Frame: 3 weeks ] [ Designated as safety issue: No ]
- Length of wakings [ Time Frame: 3 weeks ] [ Designated as safety issue: No ]
- Night to night variability (weekends & weekdays) [ Time Frame: 3 weeks ] [ Designated as safety issue: No ]
- Parent rated 10-item IOWA [ Time Frame: 3 weeks ] [ Designated as safety issue: No ]
- Affective Reactivity Index (ARI) [ Time Frame: 3 weeks ] [ Designated as safety issue: No ]

Estimated Enrollment: 38

Study Start Date: January 2016

Estimated Study Completion Date: December 2016
Estimated Primary Completion Date: December 2016 (Final data collection date for primary outcome measure)

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<tr>
<th>Arms</th>
<th>Assigned Interventions</th>
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| Active Comparator: Immediate Release Methylphenidate  
With-in subjects trial. Subjects will be randomized to 0.3 mg/kg of Immediate Release Methylphenidate versus placebo over 3-weeks duration | Drug: Immediate Release Methylphenidate  
The medication assessment procedure will be a double-blind, within-subject evaluation of placebo and matching evening dose of IR MPH rounded to the nearest 2.5mg increment with a max IR MPH dose of 0.3mg/kg. Expected evening dose range will be from 2.5mg to 20mg with most participants receiving between 5 to 15mg per evening dose. Dose will be determined based on current dose of their morning extended release stimulant  
Other Name: Generic Methylphenidate |
| Placebo Comparator: Placebo inert placebo ingredient | Drug: Placebo  
inert placebo ingredient |

Detailed Description:
The goal of this application is to assess the impact of safer treatment option Methylphenidate (MPH) on sleep and behavior problems in children with Attention Deficit Hyperactivity Disorder (ADHD) and Behavioral Insomnia of Childhood (BIC). ADHD affects over 11% of school-aged youth. Similarly, pediatric sleep disorders occur in over a third of children and impact multiple domains of the child's functioning as well as that of their parents. Children with ADHD are at an increased risk for sleep problems with a staggering comorbidity of up to 70%, while sleep deprivation worsens the already impaired social, emotional and academic functioning of children with ADHD. Therefore, improving sleep may translate into enhanced functioning in multiple realms. Delayed sleep onset latency (SOL) and bedtime resistance, the key component of the limit setting type of BIC, are particularly likely to occur in children with ADHD. Medications are commonly used for both conditions with over 6% of all school-aged children in the United States prescribed medication for ADHD and 7% for sleep. In children with ADHD, 34% of prescribed sleep medications are antipsychotics that can cause marked weight gain and metabolic changes. Alternate medications for sleep have either been found to be ineffective, difficult to tolerate or are largely unstudied in youth. MPH has an extensive database supporting their safety and efficacy. Objective sleep studies of MPH have not found consistent results, with a few studies reporting delayed SOL and while others report improved quality of sleep. Therefore, this proposal will evaluate the impact of extending MPH treatment into the early evening on sleep onset using a 3-week with-in subjects randomized trial of .3mg/kg of immediate release (IR) MPH dosed 3 hours before bedtime vs. placebo in 38 children with ADHD and chronically delayed SOL who have a history of prolonged stimulant usage. The investigators will recruit 38 children ages 6-12 of any gender and racial/ethnic status with ADHD who have been treated with stable morning dose of extended release (ER) MPH for an extended time period (30 days or more) from the primary care and psychiatry clinics at Hershey Medical Center in Hershey, PA. Recruitment will be split into three waves (13, 13, 12 participants). Parents will be reminded to administer the blinded medication dose by text message each evening (or phone call by study staff) 3 hours prior to the desired bedtime. Sleep onset will be measured by actigraphy and sleep log, with parents also reporting on level of ODD and ADHD symptoms in the evening.

Eligibility

Ages Eligible for Study: 6 Years to 12 Years
Genders Eligible for Study: Both
Accepts Healthy Volunteers: No

Criteria

Inclusion Criteria:
1. Ages 6-12 (inclusive), and able to swallow capsule
2. Children who have been treated with a stable morning dose of Extended Release Methylphenidate or twice daily dose of Immediate Release Methylphenidate for an extended period of time (30 days or longer).
3. DSM V diagnosis of Attention Deficit Hyperactivity Disorder (ADHD): Diagnosis will be assessed on the NIMH Computerized Diagnostic Interview Schedule for Children (C-DISC), and parent and teacher rating scales.
4. Children with any ADHD subtype meeting the above criteria will be eligible, although, it is expected that the majority will be of the combined subtype of ADHD given the associate between this subtype and ODD symptoms. A diagnosis of any of the two Behavioral Insomnia of Childhood (BIC) subtypes associated with delayed SOL (limit setting or combined type) will be required.
5. Sex: male or female
6. Fluent in written and spoken English.

Exclusion Criteria:
1. Age < 6 years of age or >12 years of age.
2. Children who have not had Methylphenidate (Extended Release) treatment for an extended period of time (30 days or longer).
3. A diagnosis or suspicion of sleep-disordered breathing will be exclusionary as it is not expected to be impacted by Immediate Release Methylphenidate treatment.
4. Current psychotropics other than Methylphenidate (Extended Release or Immediate Release Methylphenidate). Children prescribed alpha agonists for adjunctive control of ADHD in combination with a MPH product will be allowed to enroll as long as they meet all other entry criteria (i.e. sleep must remained impaired with use of alpha agonist).
5. Regular use of other medications that impact sleep within the last 14 days (i.e.: sedating antihistamines, melatonin).
6. Active medical/psychiatric conditions that impact sleep (i.e.: severe asthma, Autism Spectrum Disorder diagnosis, marked developmental delay, or mood/anxiety disorder).

Contacts and Locations
Choosing to participate in a study is an important personal decision. Talk with your doctor and family members or friends about deciding to join a study. To learn more about this study, you or your doctor may contact the study research staff using the Contacts provided below. For general information, see Learn About Clinical Studies.

Please refer to this study by its ClinicalTrials.gov identifier: NCT02638168

Contacts
Contact: Sara Mills, MS  717-531-0003 ext 285968  smills1@hmc.psu.edu

Sponsors and Collaborators
Milton S. Hershey Medical Center
Children's Miracle Network

Investigators
Principal Investigator:  Raman Baweja, M.D., M.S.  Milton S. Hershey Medical Center

More Information
No publications provided

Responsible Party: Raman Baweja, Assistant Professor, Milton S. Hershey Medical Center

ClinicalTrials.gov Identifier: NCT02638168  History of Changes

Other Study ID Numbers: STUDY0003056

Study First Received: December 15, 2015

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Health Authority: United States: Institutional Review Board

Additional relevant MeSH terms:
Attention Deficit Disorder with Hyperactivity  Central Nervous System Agents
Hyperkinesis  Central Nervous System Stimulants
Attention Deficit and Disruptive Behavior Disorders  Dopamine Agents
Dyskinesias  Dopamine Uptake Inhibitors
Mental Disorders  Molecular Mechanisms of Pharmacological Action
Mental Disorders Diagnosed in Childhood  Neurotransmitter Agents
Nervous System Diseases  Neurotransmitter Uptake Inhibitors
Neurologic Manifestations  Pharmacologic Actions
Signs and Symptoms  Physiological Effects of Drugs
Methylphenidate  Therapeutic Uses

ClinicalTrials.gov processed this record on December 22, 2015