



Published in final edited form as:

J Clin Psychopharmacol. 2013 June ; 33(3): 444–447. doi:10.1097/JCP.0b013e318290115e.

Does Extended Release Methylphenidate Help Adults with Hoarding Disorder? A Case Series

Carolyn I. Rodriguez, M.D., Ph.D.^{a,b}, James Bender Jr., Psy. D.^a, Samantha Morrison, Ph.D.^c, Raveen Mehendru, M.D.^c, David Tolin, Ph.D.^c, and Helen Blair Simpson, M.D., Ph.D.^{a,b}

^aNew York State Psychiatric Institute, New York, NY 10032

^bColumbia University, Department of Psychiatry, College of Physicians and Surgeons, New York, NY 10032

^cAnxiety Disorders Center Institute of Living, Hartford, CT 06106

To the Editors

Individuals with Hoarding Disorder (HD),¹ a proposed diagnosis for DSM-V, commonly self-report poor attention^{2,3} and have significant impairments on objective measures of attention (e.g., the Continuous Performance Test [CPT]).^{4,5} Problems with attention may contribute to difficulty making decisions and lead to the accumulation of clutter.⁶ A single case report of an individual with hoarding disorder and attention-deficit/hyperactivity disorder (ADHD) suggested that amphetamine salts may provide benefits in self-reported attention and some aspects of hoarding such as procrastination.⁷ However, to our knowledge, no study has tested the effects of stimulants in individuals with hoarding disorder without co-morbid ADHD. Therefore, we tested if adjunctive methylphenidate extended release (MPH-ER),⁸ a stimulant with proven efficacy in improving attention, can increase attention on both self-report and objective measures and decrease hoarding symptoms in individuals that met the proposed DSM-V criteria for HD¹ but did not have comorbid ADHD.

Four adults (age 18 to 50) who met the HD criteria proposed by Frost and Hartl⁹ (assessed by the Hoarding Rating Scale-Interview [HRS-I]¹⁰) and who had clinically significant hoarding (a Saving Inventory-Revised [SI-R]¹¹ score > 40) were recruited from the community between April 2010 and July 2010. During the study, the proposed DSM-V criteria for HD were published,¹ and all subjects met these additional criteria (i.e. hoarding symptoms not due to a medical condition [assessed by medical history and exam] and were not restricted to symptoms of another mental disease [assessed by SCID and psychiatric

Corresponding Author: Carolyn Rodriguez, M.D., Ph.D., New York State Psychiatric Institute, 1051 Riverside Drive, Unit 69, New York, NY 10032; 212-543-5637 (phone); 212-543-6515 (fax); cr2163@columbia.edu.

Previous Presentation: None.

Financial disclosures: The authors report no additional financial or other relationships relevant to the subject of this letter.

Clinical Trials Registration:

“Enhancing Attention in Adults with Compulsive Hoarding;” <http://www.clinicaltrials.gov/>; registration number NCT01100268.

exam]). One patient had comorbid Obsessive Compulsive Disorder (OCD) but the hoarding symptoms were clearly independent from the OCD (i.e., mild symptoms of needing to count choir members to a certain number or else she did not “feel right”). The institutional review board approved this study, and all subjects provided written informed consent. None met DSM-IV criteria for ADHD, but all reported at least moderate attention problems (an Adult Attention Subscale score ≥ 8 on the ADHD Symptom Scale [ADHDSS]¹²). Two of the four subjects were on medications as shown in Table 1, but these medications were stable prior to study entry (12 weeks for serotonin reuptake inhibitors [SRIs] or serotonin and norepinephrine reuptake inhibitors [SNRIs] and 4 weeks for others). Subjects were excluded for current use of any type of stimulant medication or psychotherapy, comorbid psychiatric or medical conditions that increased the risk of participation, and history of methylphenidate use.

All subjects completed the four week trial of MPH-ER. MPH-ER was started at 18mg/day and increased by 18mg per week to a maximum of 72mg/day. Weekly dose increases occurred only if clinically indicated¹³ and tolerated. At baseline (week 0) and at study end (week 4), subjects completed one measure of hoarding symptoms (self-report [SI-R]) and two measures of attention (self-report [ADHDSS] and objective [CPT]). The CPT includes the following measures of attention: correct hits, omission errors, commission errors, mean hit reaction time (decreased reaction time indicates improved attention), and the standard error of the mean hit reaction time (an indication of the consistency with which respondents can focus their attention). To evaluate safety, patients were assessed for new-onset tics,¹⁴ and symptoms of psychosis,¹⁵ mania,¹⁶ OCD,¹⁷ and depression. Response was defined as an ADHDSS reduction of at least 30%, as used in prior research;¹³ the ADHDSS has shown excellent reliability in prior studies of individuals with HD.^{2, 18}

Clinical characteristics of the four subjects are shown in Table 1. All had previously tried and failed at least 1 SRI. At baseline, all subjects exceeded the criteria for clinically significant hoarding (SI-R score ≥ 40); the mean SI-R (SD) was 67.3 (7.1).

After four weeks of MPH-ER with mean dose of 50mg (9mg), three of four patients (75%) had a $\geq 50\%$ reduction in inattention, as measured by the self-report ADHDSS. At baseline, all 4 subjects had high hit rates (97%-100%) and minimal omission or commission errors (mean omission=0.16; mean commission= 1.16). Thus, there was little room for change at week 4, and little change was seen. As shown in Table 1, the mean response time mildly decreased (2–18% [ISI=1000]; 1–15% [ISI=400]), indicating improved attention in the CPT task. Furthermore, all 4 subjects had decreases in response time standard deviations from baseline (28–46% reductions [ISI=1000]; 4–53% [ISI=4000]), indicating improved ability to sustain attention. Two of four subjects had a modest reduction in hoarding symptoms (25% and 32%), as measured by the SI-R. Inspection of the SI-R subscale symptom domains (i.e., clutter, difficulty discarding, and excessive acquisition) showed that the majority of the reduction in hoarding symptoms in these two subjects were in the excessive acquisition domain.

There were no new-onset symptoms of tics, psychosis, mania, or worsening OCD symptoms or depression. On the other hand, none of the patients chose to continue taking MPH-ER after study end because they did not like the adverse effects (e.g. insomnia, palpitations).

There are several limitations of this small, open-label case series. First, improvements in the CPT may be due to repeated administration of the CPT, rather than real improvements in attention. Second, the ADHDSS rating scale that was used to measure attention symptoms has not been validated for use in individuals without ADHD.

This case series suggests that adjunctive MPH-ER can reduce self-reported and objective inattention without causing new-onset psychiatric symptoms. In two of the four cases, there were also modest reductions of hoarding symptoms, comparable to what has been found in treatment studies of hoarding disorder,¹⁹ specifically in the excessive acquisition domain. At the same time, these four subjects decided that the benefits of MPH-ER on attention or hoarding did not outweigh the costs. Future research is warranted to determine whether amphetamine compounds also benefit specific domains of hoarding disorder.

Acknowledgments

Funding support: This investigation was supported by a T32MH015144-31 (Dr. Rodriguez).

Acknowledgments: None.

References

1. Mataix-Cols D, Frost RO, Pertusa A, et al. Hoarding disorder: a new diagnosis for DSM-V? *Depress Anxiety*. 2010; 27(6):556–572. [PubMed: 20336805]
2. Hartl TL, Duffany SR, Allen GJ, et al. Relationships among compulsive hoarding, trauma, and attention-deficit/hyperactivity disorder. *Behav Res Ther*. 2005; 43:269–276. [PubMed: 15629755]
3. Grisham JR, Brown TA, Savage CR, et al. Neuropsychological impairment associated with compulsive hoarding. *Behav Res Ther*. 2007; 45:1471–1483. [PubMed: 17341416]
4. Conners, CK. *Conners' Continuous Performance Test computer program for Windows technical guide and software manual*. Toronto, ON: Multi-Health Systems, Inc; 2000.
5. Kurtz MM, Ragland JD, Bilker W, et al. Comparison of the continuous performance test with and without working memory demands in healthy controls and patients with schizophrenia. *Schizophr Res*. 2001; 48(2–3):307–316. [PubMed: 11295383]
6. Steketee G, Frost R. Compulsive hoarding: current status of the research. *Clin Psychol Rev*. 2003; 23(7):905–927. [PubMed: 14624821]
7. Kaplan A, Hollander E. Comorbidity in compulsive hoarding: a case report. *CNS Spectr*. 2004; 9(1): 71–73. [PubMed: 14999178]
8. Biederman J, Mick EO, Surman C, et al. Comparative acute efficacy and tolerability of OROS and immediate release formulations of methylphenidate in the treatment of adults with attention-deficit/hyperactivity disorder. *BMC Psychiatry*. 2007; 7:49. [PubMed: 17868455]
9. Frost RO, Hartl TL. A cognitive-behavioral model of compulsive hoarding. *Behav Res Ther*. 1996; 34(4):341–350. [PubMed: 8871366]
10. Tolin DF, Frost RO, Steketee G. A brief interview for assessing compulsive hoarding: The Hoarding Rating Scale-Interview. *Psychiat Res*. 2010; 178(1):147–152.
11. Frost RO, Steketee G, Grisham J. Measurement of compulsive hoarding: saving inventory-revised. *Behav Res Ther*. 2004; 42(10):1163–1182. [PubMed: 15350856]
12. Barkley, RA. *Attention-Deficit Hyperactivity Disorder: A clinical workbook*. 2. New York: Guilford Press; 1998.

13. Medori R, Ramos-Quiroga JA, Casas M, et al. A randomized, placebo-controlled trial of three fixed dosages of prolonged-release OROS methylphenidate in adults with attention-deficit/hyperactivity disorder. *Biol Psychiatry*. 2008; 63(10):981–989. [PubMed: 18206857]
14. Leckman JF, Riddle MA, Hardin MT, et al. The Yale Global Tic Severity Scale: initial testing of a clinician-rated scale of tic severity. *J Am Acad Child Adolesc Psychiatry*. 1989; 28(4):566–573. [PubMed: 2768151]
15. Overall JE, Gorham DR. The Brief Psychiatric Rating Scale. *Psychology Reports*. 1962; 10:799–812.
16. Young RC, Biggs JT, Ziegler VE, et al. Young Mania Rating Scale. *The British Journal of Psychiatry*. 1978; 133:429. [PubMed: 728692]
17. Foa EB, Huppert JD, Leiberg S, et al. The Obsessive-Compulsive Inventory: development and validation of a short version. *Psychol Assess*. 2002; 14(4):485–496. [PubMed: 12501574]
18. Rachford, E.; Frost, RO.; Steketee, G., et al. *ADHD in hoarders, OCD patients, and community controls*. Association of Behavioral and Cognitive Therapies; New York: 2009.
19. Saxena S. Pharmacotherapy of compulsive hoarding. *J Clin Psychol*. 2011; 67(5):477–484. [PubMed: 21404273]

Table 1

Clinical Characteristics of Hoarding Disorder Subjects

Clinical characteristics, treatment history, and outcome of four HD patients treated with adjunctive methylphenidate extended release (MPH-ER) for 4 weeks. The continuous performance task (CPT) is reported at the interstimulus intervals of 1000 milliseconds and 4000 milliseconds, with the reaction time standard deviation (SD) and mean reaction time also reported in units of milliseconds.

Pt No	Age/Sex	Race	Comorbid Dx SCID	Prior SRI/ SNRI Trials	Current Medications	Maximum MPH-ER Dose	Side Effects	ADHDSS Score Pre/Post	SI-R Score Pre/ Post/% reduction	Mean Reaction Time CPT (ISI=1000) re/Post/% reduction	Mean Reaction Time CPT (ISI=4000) re/Post/% reduction	Reaction Time SD CPT (ISI=1000) re/Post/% reduction	Reaction Time SD CPT (ISI=4000) re/Post/% reduction
1	48/F	AA	OCD, MDD Specific Phobia	3	None	54mg	Insomnia	19/20 (↓ 0%)	75/75 (↓ 0%)	458/452 (↓ 1%)	395/386 (↓ 2%)	58/39 (↓ 33%)	72/48 (↓ 34%)
2	45/F	C	MDD, Social Phobia	1	None	36mg	Palpitations	30/10 ^c (↓ 67%)	59/40 ^d (↓ 32%)	489/461 (↓ 6%)	430/391 (↓ 9%)	118/64 (↓ 46%)	123/322 (↓ 6%) ^c
3	42/M	C	MDD	3	Duloxetine, ^a escitalopram, bupropion	54mg	Insomnia	20/10 ^c (↓ 50%)	64/62 (↓ 0%) ^c	584/499 (↓ 15%)	424/414 (↓ 2%)	71/51 (↓ 28%)	156/73 (↓ 53%)
4	36/F	C	Dysthymia, GAD	3	Citalopram, ^b clonazepam	54mg	Insomnia, headache, decreased appetite	43/16 ^c (↓ 63%)	71/53 ^d (↓ 25%) ^c	467/436 (↓ 7%) ^c	476/390 (↓ 18%)	122/83 (↓ 32%)	98/94 (↓ 4%)

AA, African American; ADHDSS, ADHD Symptom Scale; C, Caucasian; CPT, continuous performance test response time; F, female; GAD, generalized anxiety disorder; ISI, interstimulus interval; M, male; MDD, major depressive disorder; OCD, obsessive-compulsive disorder; SI-R, Saving Inventory-Revised; SRI, serotonin reuptake inhibitor; SNRI, serotonin and norepinephrine reuptake inhibitor.

^aPatient #3, duloxetine 30mg daily, escitalopram 10mg daily, bupropion 300mg daily, all stable for 15 years

^bPatient #4, citalopram 60mg daily for 12 weeks, clonazepam 2mg daily for 8 weeks

^c>30% reduction in ADHDSS

^d>25% reduction in SI-R