An Open-Label Study of Citalopram in Body Dysmorphic Disorder

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Background: Body dysmorphic disorder (BDD), a preoccupation with an imagined or slight defect in appearance, is a relatively common and impairing disorder. While available data suggest that serotonin reuptake inhibitors are effective for BDD, investigation of this disorder's response to pharmacotherapy is limited, and there are no published reports on the efficacy of the selective serotonin reuptake inhibitor citalopram. In addition, there are no published reports on change in quality of life and multiple domains of psychosocial functioning with pharmacologic treatment for patients with BDD.

Method: Fifteen subjects with DSM-IV BDD or its delusional variant were prospectively treated in a 12-week open-label trial of citalopram. Subjects were assessed at regular intervals with the Yale-Brown Obsessive Compulsive Scale Modified for BDD (BDD-YBOCS; the primary outcome measure), the Clinical Global Impressions scale (CGI), the Brown Assessment of Beliefs Scale, measures of quality of life and multiple domains of psychosocial functioning, and other scales. Data were collected from Dec. 28, 1999, to March 1, 2001.

Results: On the BDD-YBOCS, scores decreased from a mean ± SD of 30.7 ± 4.9 at baseline to 15.3 ± 10.6 at endpoint ($p < .001$), and 73.3% (N = 11) of subjects were responders. On the CGI, 40.0% of patients (N = 6) were very much improved, and 26.7% (N = 4) were much improved. Psychosocial functioning and mental health–related quality of life also significantly ($p < .05$) improved. The mean dose of citalopram was 51.3 ± 16.9 mg/day, and the mean time to response was 4.6 ± 2.6 weeks. Citalopram was generally well tolerated.

Conclusion: Citalopram appears safe and effective for BDD. Psychosocial functioning and quality of life also significantly improved with citalopram.

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Body dysmorphic disorder (BDD; also known as dysmorphophobia) is a somatoform disorder that is characterized by a distressing or impairing preoccupation with an imagined or slight defect in appearance. Research on this disorder, including its response to pharmacotherapy, is limited. Such investigation is important, not only because of the morbidity that BDD causes,[1–4] but also because a majority of patients receive surgery or other nonpsychiatric medical treatment, which appears to be usually ineffective for BDD symptoms.[5]

BDD is relatively common in the community (with reported current or lifetime prevalence rates of 0.7% to 2.3%), in psychiatric inpatient and outpatient settings, and in cosmetic surgery and dermatology settings.[6] A high percentage of patients require hospitalization, become housebound, and attempt suicide.[1,3] Completed suicide has been reported in both psychiatric[1] and dermatology[7] settings, and quality of life is unusually poor.[8]

Case reports and case series suggest that serotonin reuptake inhibitors (SRIs) are often effective for BDD, whereas other psychotropic agents and electroconvulsive therapy (ECT) appear generally ineffective,[1,3,9–12] although data are limited. Systematic studies have been conducted with fluvoxamine, clomipramine, and fluoxetine. In 2 open-label studies of fluvoxamine, a majority of patients improved.[13,14] In a double-blind crossover trial, the SRI clomipramine was more effective than desipramine,[15] supporting earlier findings from case series[3,9–12] that SRIs may be selectively effective for BDD. In the only placebo-controlled study, fluoxetine was more effective than placebo.[16] To our knowledge, the only report on other SRIs was a chart-review study, which found that all SRIs were effective for BDD.[17] That study, however, did not report specifically on citalopram, and to the best of our knowledge there are no published data on the efficacy of this medication for BDD. Our study is also the first treatment study to report on change in quality of life and various domains of psychosocial functioning with pharmacotherapy in patients with BDD.

METHOD

Subjects

The study subjects were 15 outpatients (11 women [73.3%], 4 men [26.7%]) with a mean ± SD age of

29.3 ± 11.9 years (range, 20–62 years). All subjects met DSM-IV criteria for BDD: (A) preoccupation with an imagined defect in appearance; if a slight physical anomaly is present, the person's concern is markedly excessive; (B) the preoccupation causes clinically significant distress or impairment in social, occupational, or other important areas of functioning; and (C) the preoccupation is not better accounted for by another mental disorder (e.g., dissatisfaction with body shape and size in anorexia nervosa). Patients with delusional preoccupations regarding their appearance (delusional disorder, somatic type) were included because available data suggest that delusional and nondelusional forms of BDD may be variants of the same disorder,[11] and they may be double-coded in DSM-IV.

The study inclusion criteria were as follows: (1) age of 18–65 years, (2) current DSM-IV BDD or its delusional variant (delusional disorder, somatic type), (3) total score of ≥ 20 on the Yale-Brown Obsessive Compulsive Scale Modified for BDD (BDD-YBOCS),[18] and (4) minimum score of 5 on the first 3 items of the BDD-YBOCS (these items assess the DSM-IV criteria for BDD).

Exclusion criteria were as follows: (1) lifetime history of DSM-IV bipolar disorder type I, dementia, schizophrenia, or any other DSM-IV psychotic disorder not attributable to BDD; (2) current or recent (past 6 months) DSM-IV substance abuse or dependence; (3) unstable medical illness or clinically significant abnormalities on prestudy laboratory tests, electrocardiogram (ECG), or physical examination; (4) history of seizures; (5) myocardial infarction within the past 6 months; (6) pregnancy, lactation, or inadequate contraception in women of childbearing potential; (7) a need for medication other than citalopram with possible psychotropic effects or unfavorable interactions with citalopram; (8) recent clinically significant suicidality; (9) initiation of psychotherapy or behavioral therapy from a mental health professional within 3 months prior to study baseline; (10) previous treatment with citalopram; and (11) treatment with investigational medication, depot neuroleptics, or ECT within 3 months, with fluoxetine within 6 weeks, or with other psychotropic medications within 2 weeks prior to study baseline. Subjects gave informed consent after the procedures and possible side effects were fully explained. The study was approved by an institutional review board. Data were collected from Dec. 28, 1999, to March 1, 2001.

The subjects' demographic and clinical characteristics were similar to those of other series of patients with BDD.[3,4,11] The most common areas of bodily concern were the skin (e.g., acne or scarring), in 73.3% (N = 11); hair (e.g., balding), in 53.3% (N = 8); and nose, in 46.7% (N = 7). All subjects performed associated repetitive behaviors such as excessive mirror checking, skin picking, reassurance seeking, or excessive grooming. The mean duration of illness was 10.6 ± 8.5 years. The most common current comorbid Axis I disorders were major depressive disorder (53.3%, N = 8), obsessive-compulsive disorder (20.0%, N = 3), and specific phobia (20.0%, N = 3). Nine patients (60.0%) had received past psychotherapy, and 8 (53.3%) had previously received psychotropic medication (mean number of medications = 2.6 ± 2.8). Seven subjects (46.7%) had previously received an SRI, with a total of 9 SRI trials. Only 1 past SRI trial was considered adequate in terms of previously proposed doses and durations for an adequate SRI trial in BDD,[17] and 1 (11.1%) of 9 past SRI trials led to much or very much improvement in BDD symptoms.

Assessments

All subjects received a psychiatric, medical, and family history evaluation as well as the Structured Clinical Interview for DSM-IV, Patient Edition (SCID-P).[19] Subjects met criteria for DSM-IV BDD according to both the SCID-P and a reliable semistructured SCID-like diagnostic instrument.[20] The following instruments were completed at the baseline visit and periodically throughout the study.

Yale-Brown Obsessive Compulsive Scale Modified for BDD. The BDD-YBOCS is a reliable and valid 12-item semistructured clinician-administered scale that assesses BDD severity during the past week.[18] Items are rated from 0 (no symptoms) to 4 (extreme symptoms), with a total score of 0 to 48. The scale assesses preoccupation with the perceived defect (time occupied, interference with functioning due to the preoccupation, distress, resistance, and control), associated repetitive behaviors such as mirror checking (time spent, interference with functioning, distress if the behaviors are prevented, resistance, and control), insight, and avoidance. The BDD-YBOCS was the primary measure of treatment outcome; except where noted, response of BDD symptoms was assessed with the BDD-YBOCS. A ≥ 30% decrease in total score indicated response, a cutpoint that was previously empirically derived.[18]

Clinical Global Impressions scale. The Clinical Global Impressions scale (CGI) is a 7-point scale that assesses global improvement or worsening of symptoms with ratings ranging from "very much worse" to "very much improved."[21] Clinician ratings of much or very much improvement (score of 1 or 2) were defined as improvement in BDD. The 7-point Clinical Global Impressions-Severity of Illness scale was used to assess current severity of illness.

Brown Assessment of Beliefs Scale. The Brown Assessment of Beliefs Scale is a 7-item semistructured clinician-administered scale that assesses delusionality (insight) during the past week both dimensionally and categorically.[22] The scale is reliable, valid, and sensitive to change.[22] Scores range from 0 to 24. This instrument was used to determine how convinced patients were that

their appearance was abnormal. Patients were categorized at baseline as delusional (N = 4) or nondelusional (N = 11) using an a priori, empirically derived cutpoint.[22]

Hamilton Rating Scale for Depression. The 17-item Hamilton Rating Scale for Depression (HAM-D) is a widely used measure of current severity of depression[23]; response was defined a priori as ≥ 50% decrease in total score.

Global Assessment of Functioning. The Global Assessment of Functioning (GAF) is a widely used global measure of symptom severity and psychological, social, and occupational functioning.[24] Scores range from 0 to 100, with lower scores denoting more severe illness and poorer functioning.

Social and Occupational Functioning Assessment Scale. The Social and Occupational Functioning Assessment Scale (SOFAS) is a global measure of functioning.[25] Scores range from 0 to 100, with lower scores denoting poorer functioning.

Range of Impaired Functioning Tool. The Range of Impaired Functioning Tool (LIFE-RIFT),[26] a reliable and valid semistructured interview that measures functional impairment, is composed of items from the Longitudinal Interval Follow-Up Evaluation.[27,28] It assesses psychosocial functioning in the following domains: work, schoolwork, household duties, recreation, interpersonal relations with family, relationships with friends, global satisfaction with life, and overall social adjustment. Ratings were recorded for the average level of functioning during the previous 2 weeks. Scores for each item range from 1 to 6, with lower scores indicating better functioning; scores of 1.0 to 2.0 generally reflect absence of impairment.

Medical Outcomes Study 36-Item Short-Form Health Survey. The Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36)[29] is a reliable, valid, and widely used self-report measure of physical health and physical health–related quality of life (general health, physical functioning, role limitations due to physical health problems, and bodily pain), as well as mental health and mental health–related quality of life (mental health [a measure of psychological distress and well-being], social functioning, role limitations due to emotional problems, and vitality [a measure of energy vs. fatigue]). The mental health scale is the best measure of mental health–related quality of life. Scores for the 8 SF-36 scales range from 0 to 100, with higher scores indicating better quality of life.

Procedures

Before the baseline visit, an ECG, standard laboratory tests (including β–human chorionic gonadotropin and thyroid-stimulating hormone), and a physical examination were performed. After completing all screening and baseline evaluations, subjects began receiving unblinded treatment with citalopram, 20 mg/day, for 2 weeks, which was increased to 40 mg/day on day 15 and to 60 mg/day on day 30 if tolerated. Subjects took no other psychotropic medications during the study except chloral hydrate, 0.5 to 2.0 g/day, if needed for insomnia. Psychotherapy of any form (including cognitive-behavioral therapy) was not initiated during the study.

Subjects were evaluated with the BDD-YBOCS, CGI, Brown Assessment of Beliefs Scale, and HAM-D at baseline, weekly for the first 4 weeks of the study, and every other week for the remainder of the 12-week study. The GAF, SOFAS, LIFE-RIFT, and SF-36 were completed at study baseline and endpoint. Medication compliance was assessed by tablet count. Pulse, blood pressure, and side effects were evaluated at each visit. Side effects judged as possibly, probably, or almost certainly related to the medication are included in reported rates.

Data Analysis

Except where noted, analyses were conducted on an intent-to-treat basis with the last observation carried forward. Baseline and subsequent scores on continuous study measures were compared with repeated-measures analysis of variance (using the Huynh-Feldt statistic when the assumption of sphericity was not met) or paired t tests. The chi-square or Fisher exact test was used for comparisons of categorical variables. Pearson correlation was used to assess the relationship between degree of change on study measures. Mean values are accompanied by standard deviations. All tests were 2-tailed, and an alpha level of .05 was used.

RESULTS

Of the 15 subjects, 11 (73.3%) completed the 12-week study. Scores on the BDD-YBOCS decreased from 30.7 ± 4.9 at baseline to 15.3 ± 10.6 at endpoint ($F = 14.6$, $df = 3.8,53.6$; $p < .001$), a decrease of 51.8% (Table 1 and Figure 1). Eleven (73.3%) of 15 subjects were responders on the BDD-YBOCS. When only those subjects who completed all 12 weeks of the study were considered, 9 (81.8%) were responders on the BDD-YBOCS and on the CGI. In the intent-to-treat analysis, mean time to response (30% or greater decrease in BDD-YBOCS score) was 4.6 ± 2.6 weeks (range, 1–10 weeks). The mean dose of citalopram at endpoint was 51.3 ± 16.9 mg/day (range, 10–60 mg/day), and the modal dose was 60 mg/day, with 11 subjects attaining this dose.

Level of functioning improved between baseline and endpoint, as indicated by significant increases in GAF and SOFAS scores and by significant decreases in LIFE-RIFT total score and most individual LIFE-RIFT domain scores (see Table 1). On the SF-36, subjects had notably poor mental health–related quality of life at study baseline. After treatment with citalopram, all domains of mental

Table 1. Scores for Study Measures in 15 Subjects With Body Dysmorphic Disorder (BDD) Treated With Citalopram[a]

Measure	Baseline	Week 12/ Endpoint[b]	Test Statistic	p Value
BDD-YBOCS	30.7 ± 4.9	15.3 ± 10.6	F = 14.6	< .001
CGI-Improvement (BDD), N (%)				
Very much improved		6 (40.0)		
Much improved		4 (26.7)		
CGI-Improvement (global), N (%)				
Very much improved		6 (40.0)		
Much improved		6 (40.0)		
CGI-Severity of Illness (BDD)[c]	4.6 ± 0.8	2.9 ± 1.3	t = 6.6	< .001
Brown Assessment of Beliefs Scale	15.4 ± 4.3[d]	9.7 ± 6.0[e]	F = 9.7	< .001
Hamilton Rating Scale for Depression	17.3 ± 6.7	7.6 ± 7.3	t = 4.7	< .001
GAF	54.6 ± 6.1	73.6 ± 16.5	t = 5.1	.001
SOFAS	59.4 ± 7.6	78.3 ± 16.1	t = 6.0	< .001
LIFE-RIFT				
Total score	12.1 ± 2.1	8.4 ± 3.4	t = 5.2	< .001
Work impairment	3.1 ± 0.8	1.8 ± 0.8	t = 2.6	.03
School impairment	3.3 ± 0.5	2.2 ± 1.3	t = 3.5	.03
Household impairment	3.1 ± 0.8	2.0 ± 0.9	t = 4.3	.001
Recreation	2.6 ± 1.1	1.7 ± 0.9	t = 2.7	.02
Relationships–family	2.1 ± 1.1	2.2 ± 1.2	N/A	N/A[f]
Relationships–friends	1.9 ± 1.2	1.7 ± 1.3	t = 1.8	.10
Satisfaction	3.3 ± 0.7	2.2 ± 1.0	t = 7.0	< .001
Global social adjustment	3.5 ± 0.6	2.2 ± 1.3	t = 4.5	.001
SF-36				
Mental health	36.0 ± 13.7	72.3 ± 22.7	t = 6.5	< .001
Social functioning	42.5 ± 25.4	72.9 ± 31.9	t = 3.7	.004
Role limitations–emotional	15.5 ± 29.6	66.7 ± 44.9	t = 4.1	.002
Vitality	33.3 ± 19.4	62.9 ± 27.4	t = 5.0	< .001
General health	58.5 ± 16.3	63.8 ± 13.8	t = 2.3	.04
Physical functioning	89.0 ± 19.0	96.3 ± 4.8	t = 1.4	.19
Role limitations–physical	80.0 ± 34.3	91.7 ± 22.2	t = 1.9	.09
Bodily pain	74.5 ± 24.6	90.5 ± 12.8	t = 2.4	.04

[a]Scores are expressed as mean ± SD unless otherwise noted. Data presented are for the total sample; tests of significance may have different means and SDs due to missing data.
[b]Last observation carried forward.
[c]A score of 2 = borderline mentally ill, 3 = mildly ill, 4 = moderately ill, and 5 = markedly ill.
[d]This mean score is in the poor insight range on the Brown Assessment of Beliefs Scale.
[e]This mean score is in the fair insight range on the Brown Assessment of Beliefs Scale.
[f]The pairwise t test could not be calculated (pairwise variance = 0).
Abbreviations: BDD-YBOCS = Yale-Brown Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder, CGI = Clinical Global Impressions scale, GAF = Global Assessment of Functioning, LIFE-RIFT = Range of Impaired Functioning Tool, SF-36 = Medical Outcomes Study 36-Item Short-Form Health Survey, SOFAS = Social and Occupational Functioning Assessment Scale.

health–related quality of life improved significantly, as did 2 domains of physical health–related quality of life (see Table 1).

Of the 4 subjects with BDD symptoms categorized as delusional at baseline, 2 responded to citalopram, with a mean decrease in scores among delusional responders of 42.1%, from 40.5 ± 3.5 to 23.5 ± 3.5. Nine (81.8%) of 11 nondelusional subjects responded, with BDD-YBOCS scores in nondelusional responders decreasing by 72.1%, from 28.1 ± 2.3 to 7.9 ± 5.5 ($t = 10.9$, $df = 8$, $p < .001$). In the entire sample, scores on the Brown Assessment of Beliefs Scale significantly decreased between baseline and endpoint, indicating a significant decrease in delusionality (i.e., improvement in insight; see Table 1).

Symptoms of depression as assessed by the HAM-D also significantly improved (see Table 1). Change in BDD-YBOCS and HAM-D scores was correlated $r = 0.40$ ($p = .14$). BDD symptoms were as likely to improve in subjects without major depressive disorder at study baseline as in those with current major depressive disorder (5/8 [62.5%] vs. 6/7 [85.7%], respectively; $p = .57$, Fisher exact test). Mean time to response of depressive symptoms was 3.8 ± 3.3 weeks.

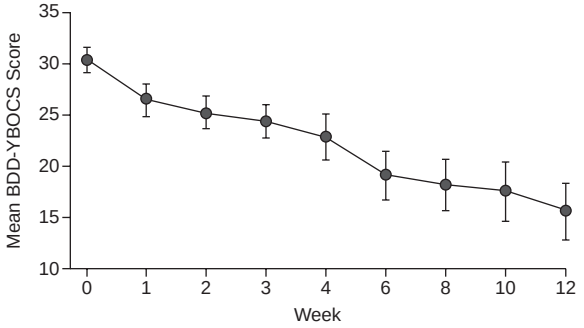
Adverse events occurring in 10% or more of subjects were nausea (N = 8), fatigue (N = 8), insomnia (N = 7), constipation (N = 3), headache (N = 2), and dry mouth (N = 2). Side effects were generally mild, well tolerated, and often transient. However, 4 subjects dropped out of the study because of adverse events (headache, N = 1; fatigue, N = 1; nausea and vomiting, N = 1; and poor concentration, N = 1). No subject required chloral hydrate for insomnia, although 1 subject required lorazepam, 1 to 2 mg/day p.r.n., for panic attacks and anxiety.

DISCUSSION

This study, the first to examine the efficacy and safety of citalopram in BDD, found that BDD symptoms improved in a majority of patients. Substantial improvement also occurred in quality of life and in a broad array of psychosocial functioning domains. Although 2 domains of psychosocial functioning (relationships with family and friends) did not significantly improve, this may reflect the small sample size or a ceiling effect (since scores were relatively low at baseline, i.e., denoting relatively good relationships). The improvement in quality of life and psychosocial functioning in all other domains (including work and school) is notable, given that patients were treated for only 12 weeks. This finding is similar to results from acute pharmacotherapy studies of other disorders, such as depression[30] and anxiety disorders.[31]

In the current study, SF-36 baseline scores of mental health–related quality of life were notably poor, similar to the only previous study of quality of life in BDD,[8] which found that BDD patients had poorer mental health–related quality of life than norms for the general U.S. population and for patients with depression, diabetes, or a recent myocardial infarction. Thus, the marked improvement in mental health–related quality of life in the current study with citalopram treatment is particularly notable. Although scores for social functioning and role limitations

Figure 1. BDD-YBOCS Scores Over Time in 15 Subjects With Body Dysmorphic Disorder Treated With Citalopram[a,b]



[a]All observations represent the last observation carried forward. Bars represent 1 SE.
[b]There was a significant time effect: $F = 14.6$, $df = 3.8,53.6$; $p < .001$.
Abbreviation: BDD-YBOCS = Yale-Brown Obsessive Compulsive Scale Modified for Body Dysmorphic Disorder.

due to emotional problems remained lower than general population norms, mental health and vitality endpoint scores were similar to those of the general population.

Given that SRI response in BDD is usually only partial,[14–17] it is notable that a sizable percentage of patients (40%) were very much improved on the CGI. This percentage is somewhat higher than that reported in a fluvoxamine study (30%)[14] and notably higher than that reported in a fluoxetine study (15%).[16] These comparisons should be made with caution, however, because these medications have not been directly compared; the results could reflect differences in the study samples or other factors, rather than greater efficacy of citalopram.

In this study, BDD symptoms responded relatively quickly (4.6 ± 2.6 weeks; range, 1–10 weeks) compared with previous SRI studies. Previous studies have consistently reported a mean time to response of BDD symptoms of 6 to 9 weeks, with some patients requiring as long as 16 weeks.[10,12,14,16] Differences in the titration schedule appear unlikely to explain this difference, as most studies increased the dose relatively rapidly and used the same criteria for onset of response. Because no studies have directly compared one SRI with another and because of the small sample size, however, it cannot be concluded definitively that citalopram has a quicker onset of action than other SRIs. Nonetheless, this finding is intriguing and potentially clinically important, given the long latency often required for improvement of BDD.

Most patients with BDD have poor insight or are delusional regarding their appearance flaws,[11] which has the potential to complicate treatment. Although only 4 patients in this study were delusional at baseline (and therefore qualified for a diagnosis of delusional disorder), 50% of the delusional patients responded to citalopram, consistent with reports of other SRIs, which have found that delusional BDD responds as well to SRIs as nondelusional BDD.[3,11,12,15–17,32] In addition, insight improved with citalopram treatment, so that patients not only experienced a decrease in obsessional preoccupation, repetitive behaviors, distress, and functional impairment, but also developed a more accurate appraisal of the appearance of the perceived flaw. These findings are interesting, given that delusional symptoms in disorders other than BDD are not generally considered responsive to SRIs.

Citalopram was generally well tolerated. Although 4 patients dropped out of the study because of side effects, the dose was titrated fairly rapidly, and most patients attained the maximum recommended dose. This dosing may have accounted for or contributed to early termination. The titration schedule was used to avoid undertreating BDD. Available data suggest that effective treatment of BDD requires relatively high SRI doses,[17] although studies comparing different SRI doses have not been done, and the efficacy of lower doses needs to be studied. Indeed, the finding that the mean time to response of BDD symptoms in this study occurred at 4.6 weeks, whereas the citalopram dose was not raised to 60 mg/day until the end of week 4 of treatment, suggests that doses lower than those used in this study may be efficacious for BDD.

Limitations of this study include the small sample size, unblinded assessment of treatment outcome, and lack of a comparison/control group. The last limitation makes it unclear how many patients in this study actually had a "placebo" response rather than a specific response to citalopram. While this question cannot be answered because the study did not include a placebo treatment arm, the only placebo-controlled study in BDD to date had a low placebo response rate (18%).[16] In addition, patients in the present study had fairly chronic BDD (mean duration of 10.6 years), which might be expected to be associated with a relatively low rate of placebo response. Additionally, 8 of 9 past SRI trials, received by 7 subjects, were ineffective. However, placebo-controlled trials of citalopram and other medications are needed to elucidate placebo response rates in BDD. An additional limitation is that because citalopram is effective for depression, it is possible that the medication's antidepressant effect influenced treatment response of BDD. However, citalopram was as effective in patients without major depressive disorder at baseline as in those with major depressive disorder at baseline; in addition, the correlation between improvement in BDD and depressive symptoms was only 0.4. Thus, response of BDD appeared relatively independent of response of depressive symptoms. This issue is complicated by clinical impressions that depressive symptoms in patients with BDD are often secondary to BDD. Additional studies are needed to address these questions and limitations and to more definitively establish efficacious treatments for this relatively common and impairing disorder.

Drug names: citalopram (Celexa), clomipramine (Anafranil and others), desipramine (Norpramin and others), fluoxetine (Prozac and others), fluvoxamine (Luvox and others), lorazepam (Ativan and others).

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