

Group Cognitive-Behavioral Therapy Versus Sertraline for the Treatment of Children and Adolescents With Obsessive-Compulsive Disorder

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ABSTRACT

Objective: To compare the effectiveness of group cognitive-behavioral therapy (GCBT) and of sertraline in treatment-naïve children and adolescents with obsessive-compulsive disorder. **Method:** Between 2000 and 2002, 40 subjects between 9 and 17 years old were randomized to receive GCBT ($n = 20$) or sertraline ($n = 20$). GCBT consisted of a manual-based 12-week cognitive-behavioral protocol adapted for groups, and treatment with sertraline involved medication intake for 12 weeks. Subjects were assessed before, during, and after treatment (at 1, 3, 6, and 9 months after treatment conclusion). Primary outcome measure was the Children's Yale-Brown Obsessive-Compulsive Scale. Repeated-measures analyses of variance were done. **Results:** Both GCBT and sertraline conditions had significant improvement in obsessive-compulsive disorder symptoms as measured by the Children's Yale-Brown Obsessive-Compulsive Scale after 12 weeks of treatment. After the 9-month follow-up period, subjects in the GCBT condition had a significantly lower rate of symptom relapse than those in the sertraline group. **Conclusions:** The treatment with GCBT may be effective in decreasing obsessive-compulsive symptoms in childhood obsessive-compulsive disorder and should be considered as an alternative to either individual cognitive-behavioral therapy or a medication, such as sertraline. Results support the effectiveness and the maintenance of gains of GCBT in the treatment of youngsters with obsessive-compulsive disorder. *J. Am. Acad. Child Adolesc. Psychiatry*, 2005;44(11): 1128–1136. **Key Words:** child/adolescent obsessive-compulsive disorder, cognitive-behavioral therapy, group therapy, sertraline, serotonin reuptake inhibitors.

Obsessive-compulsive disorder (OCD) affects 1%–2% of children and adolescents and frequently interferes in family, academic, and social functioning (Valleni-Basile et al., 1994).

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Several clinical trials demonstrate that pharmacotherapy with serotonin reuptake inhibitors (SRIs) is effective for pediatric OCD. In these studies, 39%–75% of subjects were rated much or very much improved (Leonard et al., 1989; March et al., 1998a; Riddle et al., 1992, 2001). Regarded as a chronic condition, it has been suggested that youngsters with OCD deserve sustained treatment for years, as symptoms usually recur after discontinuation of treatment (Leonard et al., 1993, Romano et al., 2001).

Cognitive-behavioral psychotherapy has become the psychological treatment of choice for adults with OCD (Baer, 1996), reducing symptoms to a level similar to that seen with pharmacotherapy (Marks, 1997). Moreover, the clinical improvement obtained at the end of treatment is maintained at follow-ups of 1–5 years (Marks, 1981). Along with the use of individual cognitive-behavioral therapy (CBT), other formats,

such as computer-assisted and group CBT (GCBT) have also been used and seem to be effective (Baer and Greist, 1997; Van Noppen et al., 1998).

Evidence from open trials and clinical reports suggests that CBT, alone or in combination with pharmacotherapy, may also be an effective treatment for OCD in children and adolescents (de Haan et al., 1998; March et al., 2001). Using CBT in a group format, some controlled studies demonstrate symptomatic improvement in children and adolescents with anxiety disorders, such as separation and generalized anxiety disorders, social phobia, and posttraumatic stress disorder (Hayward et al., 2000; March et al., 1998b; Silverman et al., 1999). In an open-label study, Thienemann et al. (2001) found a 25% improvement in half of the 18 adolescents with OCD who were treated with GCBT for 14 weeks, based on a treatment protocol (March and Mulle, 1998). However, 78% of the subjects had previous CBT and 83% were taking medication while participating in the trial.

Based on evidence that shows the effectiveness of the SRIs and of individual CBT and GCBT for early-onset OCD, we hypothesized that OCD symptoms would equally improve in both treatment conditions during the acute treatments, and, secondarily, comorbid conditions, such as anxious and depressive symptomatology, would also improve when subjects underwent the OCD treatments. Because individuals who receive CBT are able to use cognitive-behavioral techniques even after the end of treatment and OCD is commonly a chronic and relapsing condition, we also hypothesized that subjects who received GCBT would present lower rates of relapse during the follow-up period than subjects who were treated with sertraline. We report the results of a clinical trial comparing OCD subjects, naïve to any previous treatment, treated with GCBT and sertraline (a standard pharmacological treatment for pediatric OCD) for 12 weeks and the results from a 9-month follow-up period, during which no active treatment was administered.

METHOD

Patient Selection Criteria

Participants in this study were subjects, 9–17 years old, who met the *DSM-IV* diagnostic criteria for OCD on clinical interviews (which included a semistructured interview). From October 2000 until April 2002, subjects were recruited as part of a local “OCD

Awareness” campaign done by the OCD Association in São Paulo, Brazil, who then were referred to the Anxiety Disorders in Children and Adolescents Program of the Department of Psychiatry of the University of São Paulo Medical School. Inclusion criteria comprised subjects who had OCD for at least 6 months, had received neither previous nor current treatment for OCD (either drug or CBT), and had a score ≥ 7 (which means that subjects presented clinically significant symptomatology) on the NIMH Global Obsessive-Compulsive Scale (NIMH-GOCS; Murphy et al., 1982). Exclusion criteria included subjects who had any of the following coexisting disorders: major depressive disorder as a primary diagnosis (if concurrent depression were present, it must have had been secondary to OCD in the evaluator’s judgment), bipolar disorder, attention-deficit/hyperactive disorder (ADHD) as a primary disorder and/or if psychostimulants were required, neurological disorders other than Tourette syndrome, pervasive developmental disorders, posttraumatic stress disorder, borderline personality disorder, psychosis, or any organic brain disorder. Subjects were also excluded if they showed a reduction of at least 25% on the CY-BOCS scores or 2 points on the NIMH Clinical Global Impressions (CGI) of Severity of Illness rating scale (Guy, 1976) between the first evaluation and the beginning of treatment. Subjects who were eligible and their parents gave written informed assent and consent, respectively, for participation in this study.

Study Design

On study entry, all subjects were submitted to an initial evaluation period during which they did not receive any treatment. After this period, subjects were randomly assigned to one of the two treatment conditions, GCBT or sertraline, and received treatment for 12 weeks. For the subjects considered responders to treatment, a 9-month follow-up period followed at the end of the acute treatments, during which subjects returned five times to the outpatient clinic for assessment, without receiving any additional treatment. Thus, subjects were seen 18 times during the study: 1 week before randomization, at baseline (week 1), weekly for the next 11 weeks of treatment, and at 1, 2, 3, 6, and 9 months after the end of the 12-week acute treatments.

Acute Treatments

Two cognitive-behavioral therapists (one child and adolescent psychiatrist and one clinical psychologist) administered the GCBT and a child and adolescent psychiatrist administered the drug treatment. All of them were experienced in the treatment of childhood-onset OCD. Treatment manuals were used to guide subjects and parents during treatment.

GCBT. The 12 weekly sessions of GCBT were based on the individual CBT protocol included in the manual *OCD in Children and Adolescents: A Cognitive-Behavioral Treatment Manual* (March and Mulle, 1998), which was adapted to a group format (90-minute sessions). Three groups were held during the study; one group had six subjects and two groups had seven subjects in each.

The main elements in the treatment protocol included psychoeducation about OCD, cognitive training, exposure and response prevention (E/RP), and family sessions.

Treatment began with psychoeducation in which OCD was described as a neuropsychiatric disorder. Examples from scientific evidences were presented, demonstrating benefits of CBT in adults. Metaphors, such as describing OCD as a “brain hiccup” were used. Cognitive strategies of naming and externalizing OCD were also

introduced. Group rules including confidentiality, absences, and being respectful to the others in the group were emphasized. Treatment was followed by the introduction of the "fear thermometer," which exemplified subjective units of distress associated with specific cues/situations. Along with mapping the disorder (identification of specific obsessions, compulsions, triggers, avoidance behaviors, and consequences), the fear thermometer helps develop a hierarchy of symptoms. Cognitive training, with new elements of cognitive therapy, such as constructive self-talk, cultivating detachment, and cognitive restructuring were introduced in week 3.

Beginning in week 4, E/RP tasks were planned. Graded E/RP, including therapist-assisted imaginal and in vivo E/RP practice linked to weekly homework assignments, and troubleshooting continued in weeks 5 and 6. In week 7, session included parents and siblings and concentrated on family roles in OCD, how parents might participate in OCD rituals. E/RP continued from weeks 8 to 11, focusing on moving the stimulus hierarchy up and completing the E/RP tasks. Treatment ended in week 12 with the participation of families. Issues concerning relapse prevention and imaginal exposures were presented. After the last session, there was a graduation party celebrating the subjects' accomplishments.

The presentation of psychoeducation about OCD, the rationale about symptom hierarchy and OCD mapping, degree of symptom distress (fear thermometer), the cognitive training, and exposition/response prevention (E/RP) techniques was given in the groups exactly as in the individual treatment. Nevertheless, every subject had his/her own treatment plan (which included symptom hierarchy, OCD mapping, ratings with the fear thermometer, and cognitive and E/RP techniques) tailored individually, according to the particular constellation of symptoms that each of the subjects presented. The homework tasks were determined for each subject individually as well as homework completion.

In addition to the main treatment elements, each session included checking homework, careful revision of last week's tasks, introduction of new information, planning of new homework, and monitoring procedures. Parents were invited to attend the last 15 minutes of each session, when homework for next session was confirmed, group topics were reviewed, and questions about treatment could be clarified. Concerning the rates of CBT homework completion, subjects were divided into three groups: "noncompliers" (less than 50% of task compliance), "partially compliers" (between 50% and 80% of the tasks completed), and "compliers" (more than 80% of task compliance).

Regarding attendance, subjects and parents could miss up to two sessions (missed sessions were caught up with the therapist before the next group session). At least one of the parents was required to attend every session.

Medication Treatment. In the medication condition, both subject and the parents were given an explanation of the clinical effects of the drug. No cognitive-behavioral intervention was provided. Sertraline hydrochloride was given as a single 25-mg dose for the first week and then gradually titrated (every 4 days) to a maximum daily dose of 200 mg, as much as could be tolerated. The doses could be increased depending on clinical evaluations and whether the CGI scores were unchanged or worsened from baseline. Most subjects reached final dose by week 4 or 5.

Measures

The main effectiveness measure was the Children's Yale-Brown Obsessive-Compulsive Scale (CY-BOCS; Scahill et al., 1997). This instrument is a 10-item anchored ordinal scale (0–4) that rates the

clinical severity of the disorder by scoring the time occupied, degree of subjective distress, life interference, internal resistance, and degree of control for both obsessions and compulsions. Five items are specific for obsessions, and the other five are specific for compulsions. Other instruments to assess severity of OCD used in this study were the NIMH-GOCS and the CGI. Subjects were also evaluated for anxiety and depression with the Multidimensional Anxiety Scale for Children (MASC; March et al., 1997) and the Children's Depression Inventory (CDI; Kovacs, 1992), respectively. In addition, adaptive functioning of subjects was assessed through the Children's Global Assessment Scale (CGAS), which is rated on a 100-point scale, with 1 being most impaired and 100 being least impaired (Shaffer et al., 1983). At baseline, the Schedule for Affective Disorders and Schizophrenia-Child Version was used for the assessment of current and lifetime psychiatric diagnoses according to *DSM-IV* criteria (Ambrosini, 2000), as well as the evaluation of tics with the Yale Global Tic Severity Scale (Leckman et al., 1989). Subjects were assessed during the treatment through the CY-BOCS, NIMH-GOCS, CGI, MASC, CDI, and a side effects checklist at weeks 1, 4, 8, and 12 and at 1, 2, 3, 6, and 9 months after the end of the active treatment. The CGAS was rated at 1 and 12 weeks and at 3, 6, and 9 months after the end of treatment.

Two independent evaluators (F.L.-N. and M.N.M.), who were blinded to treatment assignment, performed all clinician-rated instruments. Subjects were not assessed by their own therapist and were asked not to reveal any information about their treatment to the independent evaluators.

Data Analysis

The demographic and clinical characteristics at baseline of both groups were compared using the χ^2 or Fisher exact tests (categorical variables) and the Student *t* test (numerical variables). The Kolmogorov-Smirnov test was used to verify the goodness of fit for normal distribution, and the Levene test was used to verify the homoscedasticity.

Two-way repeated-measures analysis of variance was used to compare the means of scores at baseline and after 12 weeks of active treatments, as well as at the beginning and the end of the follow-up period. The Tukey-HSD test was used to make multiple comparisons. An intent-to-treat design was not used because only one subject did not complete 1 of the 12 weekly active treatments.

RESULTS

Acute Treatment Phase

Subject Characteristics and Baseline Severity. Forty subjects were randomly allocated into two groups for a 12-week treatment; 20 were treated with sertraline and 20 received GCBT. In the sertraline group, the subjects' compliance to medication was complete. Among the GCBT subjects, 15% of the subjects were considered "noncompliers," 40% were considered "partial compliers," and 45% were considered "compliers." The groups were similar according to sex, age at baseline, age at onset, and duration of symptoms (Table 1). The baseline OCD

TABLE 1

Sex, Mean of Age at Baseline, Age at Onset, and Duration of Symptoms of Subjects in Group CBT and Sertraline Conditions, and Statistical Results

Characteristics	GCBT	Sertraline	<i>p</i> Value
No. of subjects	20	20	
No. (%) of males	15 (75)	11 (55)	.185 ^a
Mean (SD) age at baseline (yr)	13.7 (2.32)	12.4 (2.76)	.130 ^b
Mean (SD) age at onset (yr)	8.9 (2.63)	8.9 (3.21)	1.000 ^b
Mean (SD) duration of symptoms (yr)	4.8 (2.72)	3.6 (2.16)	.108 ^b

^a Chi-square test.

^b Student *t* test.

severity and all other baseline secondary outcome measures (NIMH-GOCS, CDI, CGI, MASC, and CGAS) were similar for both groups (Table 2).

Comorbidities

Although OCD was the subjects' primary problem, 28 subjects (70%) had at least one comorbid diagnosis. Twelve subjects had 1 comorbid diagnosis, 10 had 2, 1 had 3, 1 had 4, 2 had 5, and 2 had 6 comorbid diagnoses. There were no differences between groups with reference to comorbid diagnoses (Table 3).

Treatment Effects. Figure 1 shows the means of scores of the outcome measures for both groups during the active treatments (GCBT: *n* = 20; sertraline: *n* = 19) and during the follow-up period (statistical analysis included only subjects who did not show symptom relapse during the 9-month period: 18 subjects from GCBT and eight from the sertraline condition).

Primary Outcome Measures. CY-BOCS. Both groups had a significant reduction of OCD severity after 12 weeks of treatment, as measured by CY-BOCS total scores ($F_{1,37} = 163.3272$; both groups: $p < .001$), by obsessive subscores ($F_{1,37} = 109.2660$; both groups: $p < .001$), and by compulsive subscores ($F_{1,37} = 156.4901$; both groups: $p < .001$).

Secondary Outcome Measures. After 12 weeks of treatment, both groups had a significant reduction on the CGAS ($F_{1,37} = 130.062$; both groups: $p < .001$), CGI ($F_{1,37} = 140.9038$; both groups: $p < .001$), and NIMH-GOCS ($F_{1,37} = 107.0769$; both groups: $p < .001$). On the CDI, only the sertraline group had a significant reduction ($F_{1,37} = 2.66975$; $p = .020$; GCBT: $p = .127$), and on the MASC, none of the groups presented a significant reduction ($F_{1,37} = 0.03218$; GCBT: $p = .957$; sertraline: $p = .873$).

Drug Dose and Adverse Events. The mean dose of sertraline was 137.5 ± 57.1 mg/day. With regard to adverse events, subjects in the sertraline group had significantly more weight loss than subjects who received GCBT ($p = .020$). The presence of nausea and abdominal discomfort was significantly higher in the GCBT group ($p = .047$ and $p = .043$, respectively). All other adverse events (including irritability, headache, dry mouth, tremors, diarrhea, sweating, increase of appetite, and weight gain) were similar for both groups.

Discontinuation

The percentage of subjects who completed the acute treatments was similar for both groups (GCBT: 20 [100%]; sertraline: 19 [95%], $p = .318$). One child (sertraline group) was withdrawn from the study because of

TABLE 2

Baseline Scores of Subjects in Group CBT and in Sertraline Conditions: Means, SDs, and Statistical Results

	GCBT	Sertraline	Test Value ^a	<i>p</i> Value
	Mean (SD)	Mean (SD)		
CY-BOCS total score	26.30 (4.90)	27.0 (6.65)	$t(38 df) = -0.707$.216
CY-BOCS Obs	12.95 (3.02)	13.25 (3.34)	$t(38 df) = -0.298$.767
CY-BOCS Comp	13.35 (3.13)	13.75 (3.81)	$t(38 df) = -0.363$.719
CGAS	49.80 (13.49)	48.40 (9.81)	$t(38 df) = 0.376$.709
CGI	5.35 (0.88)	5.30 (0.73)	$t(38 df) = 0.196$.846
NIMH-GOCS	10.10 (1.89)	9.80 (1.79)	$t(38 df) = 0.515$.610
CDI	14.90 (6.99)	14.45 (9.22)	$t(38 df) = 0.174$.863
MASC	67.15 (22.38)	56.95 (24.06)	$t(38 df) = 1.388$.173
YGTSS	17.26 (20.14)	10.30 (19.98)	$t(37 df) = 1.084$.286

Note: Obs = Obsessions subtotal score; Comp = Compulsions subtotal score; YGTSS = Yale Global Tic Severity Scale.

^a Student *t* test.

TABLE 3

Comorbid Diagnoses at Baseline of Subjects in Group CBT and in Sertraline Conditions and Statistical Results

Disorders	GCBT (<i>n</i> = 20) No. (%)	Sertraline (<i>n</i> = 20) No. (%)	<i>p</i> Value ^a
Depression	2 (10)	5 (25)	.407
Mania	—	1 (5)	1.000
Anxiety disorders ^b	6 (30)	6 (30)	1.000
ODD ^c	1 (5)	5 (25)	.182
Tic disorders	13 (65)	8 (40)	.113
Enuresis	2 (10)	2	1.000
ADHD	3 (15)	6	.451
Anorexia/bulimia	—	1	1.000

^a Chi-square or Fisher tests.

^b Anxiety disorders include posttraumatic stress disorder, separation anxiety disorder, specific phobia, and panic disorder.

^c ODD = oppositional defiant disorder.

the development of an acute episode of agitation and insomnia in week 8 (he met criteria for hypomania). Two subjects (one in each treatment group) showed no clinical response (reduction <25% in the CY-BOCS score) and were considered nonresponders after the end of the acute treatments.

Posttreatments Effects

There was a statistical difference between groups in subjects who relapsed during the follow-up period (GCBT: 1/19 [5.3%]; sertraline: 10/18 [50%]; *p* = .002). As a result of the return of obsessions and compulsions after the end of the acute treatments, 11 subjects (10 of 18 from the sertraline and 1 of 19 from the GCBT condition) did not finish the follow-up evaluations, requiring the reintroduction of either medication or CBT interventions (6 subjects before 1 month, 1 between 2 and 3 months, 3 between 3 and 6 months, and 1 between 6 and 9 months after the end of treatment).

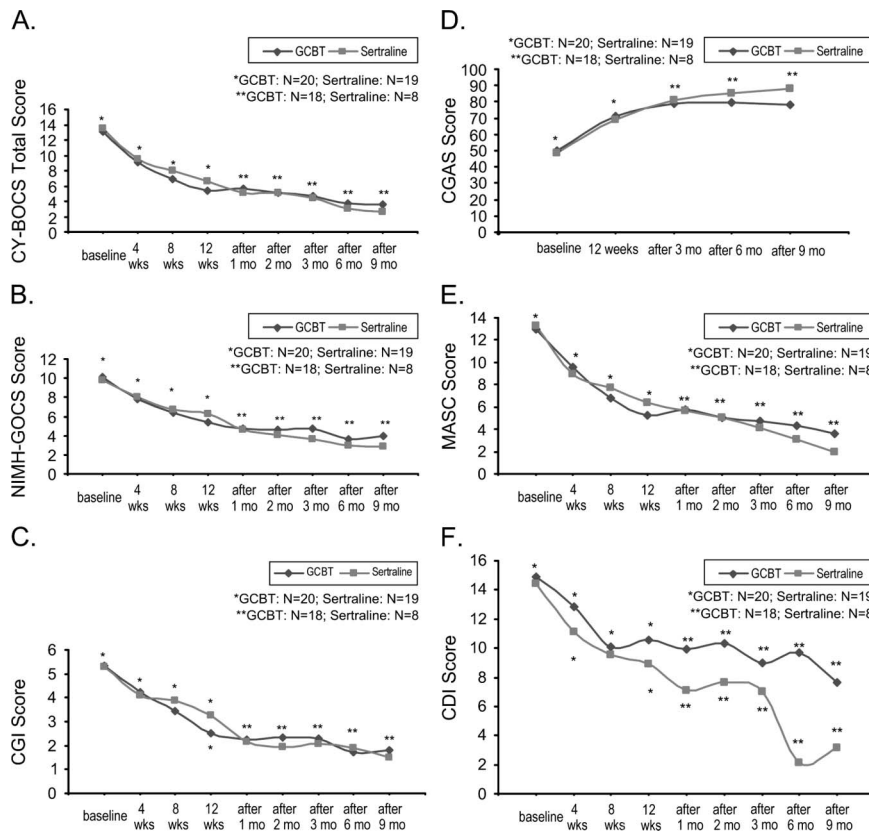


Fig. 1 Mean scores of outcome measures in group cognitive-behavioral therapy (GCBT) and in sertraline conditions during the active treatments (GCBT: *n* = 20; sertraline: *n* = 19) and during follow-up (GCBT: *n* = 18; sertraline: *n* = 8). (A) Children’s Yale-Brown Obsessive-Compulsive Scale (CYBOCS) total score; (B) National Institute of Mental Health Global Obsessive-Compulsive Scale (NIMH-GOCS); (C) Clinical Global Impression-Severity Scale (CGI); (D) Children’s Global Assessment Scale (CGAS); (E) Multidimensional Anxiety Scale for Children (MASC); (F) Child Depression Inventory (CDI).

They were then withdrawn from the study. Thus, 18 subjects from the GCBT and 8 from the sertraline conditions completed the study and were considered in the follow-up statistical analysis.

Primary Outcome Measures. Considering only the subjects who completed the follow-up period (GCBT: $n = 18$; sertraline: $n = 8$) in the comparison of means, a significant reduction on the CY-BOCS score as measured by total scores ($F_{1,24} = 13.28008$, $p = .028$; GCBT: $p = .208$) and by obsessive subscores ($F_{1,24} = 14.2000$, $p = .011$; GCBT: $p = .366$) was observed in the sertraline condition ($n = 8$) after the 9-month follow-up. Regarding the compulsive subscores, none of the conditions had a significant reduction ($F_{1,24} = 6.69144$; GCBT: $p = .292$; sertraline: $p = .254$). The means of all CY-BOCS scores in the GCBT group did not differ after 9 months without any treatment.

Secondary Outcome Measures. Considering only the subjects who completed the follow-up period (GCBT: $n = 18$; sertraline: $n = 8$) in the comparison of means, a significant reduction on the CGAS ($F_{1,24} = 11.4016$, $p = .016$; GCBT: $p = .365$), CDI ($F_{1,24} = 2.66975$, $p = .020$; GCBT: $p = .127$), and MASC ($F_{1,24} = 5.09088$, $p = 0.011$; GCBT: $p = .517$) was observed in the sertraline group ($n = 8$) after the 9-month follow-up. No differences were observed in reference to the CGI ($F_{1,24} = 9.0856$; GCBT: $p = .299$; sertraline: $p = .099$) and NIMH-GOCS ($F_{1,24} = 11.1559$; GCBT: $p = .226$; sertraline: $p = .072$) in both groups.

DISCUSSION

To our knowledge, this is the first study to compare GCBT with an effective medication for OCD in treatment-naïve children and adolescents. According to our a priori hypothesis, our findings show that GCBT is as effective as sertraline for children and adolescents with OCD, reducing significantly all obsessive-compulsive symptomatology measures along the 12 weeks of the acute treatments, with enduring improvement across the 9-month follow-up. Unlike previous CBT and pharmacological trials, our study did not include subjects who previously received either medication or CBT intervention for OCD. The inclusion of only treatment-naïve subjects may have helped increase subjects' compliance with treatment as well as biased the sample with the inclusion of less-severe OCD cases. Nevertheless, the severity of OCD symptoms in the present trial

was comparable to that of previous studies with childhood OCD subjects.

For the group treatment, we employed an adapted treatment protocol based on the individual CBT procedure of March and Mulle (1998). Recently, Barrett et al. (2004), using a treatment protocol adapted for families, also based on the original work of March and Mulle, demonstrated that group cognitive-behavioral family therapy is effective and comparable to individual cognitive-behavioral family therapy in reducing OCD symptoms. Our findings support the work of Barrett and colleagues, demonstrating that the use of a treatment manual adapted to a group format may be effective, "making the exportation and the replication of a protocol-driven treatment possible, which may increase the generalizability of results, as well as provide a rationale for exporting research-based treatments into clinical settings" (March, 1995).

Although the improvement observed after the 12-week treatments on all obsessive-compulsive and secondary measures was maintained in both groups of subjects who remained in the study through the 9-month follow-up, it is noteworthy that the CBT condition showed a significant lower rate of symptoms relapse than the sertraline group (10 of 11 subjects who relapsed were in the medication group). More than 50% of subjects who received sertraline in the first 12 weeks required the reintroduction of it during the follow-up and thus were withdrawn from the study and were not included in the follow-up statistical analysis. Similar to previous findings (Leonard et al., 1993), our results showed a high attrition rate (more than 50%) after the discontinuation of medication. Conversely, only 1 of the 19 subjects from the GCBT condition relapsed during the follow-up period, demonstrating that the gains with the acute cognitive-behavioral treatment are maintained for a period of 9 months after the end of therapy. Our data support and expand the findings of Barrett et al. (2004), whose study showed maintenance of gains during a 6-month period.

Secondary measures, such as the MASC and the CDI, decreased over time for both groups, with no difference between treatment conditions after the acute treatments, suggesting that secondary comorbid depressive and anxious symptomatology may also decrease when specific interventions for OCD are addressed. Although the sertraline group had lower CDI, MASC, and CGAS measures than the GCBT group after the follow-up

period, these findings should be carefully interpreted because more than half of the subjects (10 of 18) in the sertraline condition experienced a relapse of their symptoms after the end of the active treatment and were excluded from the follow-up analysis. The use of an intent-to-treat analysis, instead of a completer analysis, would likely yield a different pattern of results in the follow-up period. Furthermore, one must also consider that being part of a research study alone may have conferred some permanent improvements on both treatment groups. Future studies are warranted to further explore this issue.

Concerning the adverse events, the majority of them were mild in both treatment groups, although sertraline led to more weight loss than did GCBT and subjects receiving GCBT had significantly more nausea and abdominal discomfort than individuals who took sertraline. One possible explanation for more prominent gastrointestinal symptoms among the GCBT subjects could have been the anxiety provoked by the exposures and response prevention along the treatment. It is important to note that only one subject discontinued treatment because of adverse experiences (development of hypomania). Given the recent interest in SRIs and suicidality, it is noteworthy that none of the subjects who took sertraline had either presented/developed suicidal thoughts or behavior after the introduction of this medication (before treatment, none of the individuals had this sort of symptom). Thus, as reported in former studies with sertraline in youths and in adults (March et al., 1998a; Greist et al., 1995), our data showed that this compound was generally well tolerated.

Clinical Implications

Besides the clinical improvement, GCBT may enhance adherence to treatment, not found in an individual format setting, through providing modeling, peer support, and opportunities to share and exchange information about their symptomatology and their exposure interventions during sessions. Group CBT seems to be of particular help for youngsters who feel ashamed and guilty about having OCD. In addition, the inclusion of sessions with parents and their active participation along the treatment also seemed to improve the clinical outcome, particularly in situations in which parents were directly involved in rituals. GCBT may not be as beneficial as individual CBT for all subjects, however, and the latter format may be more suitable for some

subjects. Indeed, Manassis et al. (2002), in a comparison between GCBT and individual CBT for children with anxiety disorders, showed that subjects with comorbid social anxiety may respond preferentially to individual treatment. Future studies, comparing group and individual CBT for childhood-onset OCD, are certainly necessary to address this issue.

Along with the peer-learning experiences, GCBT seems to promote enduring improvement through the repetition of exposures/response preventions and changes in cognition and behaviors, which leads to a symptom reduction. Then, through habituation, a learning process takes place. Although the SRIs may also decrease symptoms, the process of habituation does not seem to occur with the use of these medications. Indeed, a high rate of symptom relapse has been observed after discontinuation of these medications and remains an important clinical concern (Leonard et al., 1993; Romano et al., 2001). Because OCD is a chronic condition, CBT (individual or in group) may offer advantages over pharmacotherapy for youngsters with OCD in the long-term because these subjects often require continuous treatment.

Limitations

Before considering the general clinical implications of the results, some limitations should be addressed. Initially, because this is the first study to show that CBT in a group format may be effective and comparable to a standard medication for OCD (sertraline), we must carefully interpret the generalizability of the results. Second, there may have been potential sources of unreliability in both treatment conditions. Because subjects were assessed 11 times by the same raters along the study, they may have wished to please them (as well as the therapists) by trying to correspond to the professionals' expectations when responding to the inquiries. Alternatively, they may have wished to go through the questions as quickly as possible, increasing the chance of inaccurate responses to finish the task of responding to all of the outcome measures (with the same questions) over and over again. Moreover, one must consider that patients with OCD may frequently keep their symptoms as much of a secret as possible, as they try to minimize the interference and the annoying role obsessions and compulsions can play in the patient's life. Thus, these issues may have influenced the reliability of the outcome measures, although this effect may have been minimized

because we used multiple informants in assessing OCD symptomatology. Additional studies, with larger samples and distinct sociodemographic characteristics, are certainly necessary before the generalizability of the present findings can be made.

We did not include a placebo, a waitlist, or an attention control condition as a control for the active treatments. Therefore, the results presented in this study do not allow us to establish the effects of GCBT and sertraline corrected for nonspecific influences such as rater bias, expectation, and time tendency. Instead, we took the treatment with sertraline as a proven measure against which the effect of GCBT was compared. Similar to adults, youths with OCD do not seem to respond to placebo. Furthermore, as the sertraline subjects had the same number of visits and the same amount of time spent with the therapist as the GCBT subjects, this served as a control for the quantity of attention received.

Despite the fact that parents acknowledged the importance of participating throughout the treatment and the clinical impression that the involvement of families during the whole treatment process may have helped subjects with their OCD symptoms, we did not include an outcome measure regarding the parents' active participation in the treatments. This would help quantify possible benefits that their involvement could bring to treatment outcome. In future trials, specific measures focusing on parents' role in their son/daughter OCD will certainly be required.

Because of the small sample size, we were not able to separate subjects by age groups. Thus, we did not know whether differences exist in treatment response between younger children and adolescents for either the GCBT or the sertraline condition. Future studies should consider this issue.

Although secondary anxiety and depression measures decreased along the study, we did not assess psychiatric comorbidities either immediately after treatment or during the follow-up. These evaluations may have helped us evaluate the impact that specific treatments for OCD could have on secondary comorbid conditions, including possible relapses.

Conclusions

This study demonstrates that CBT in a group format for youngsters with OCD may be effective and should be considered as an alternative to either individual CBT or an SRI such as sertraline. In addition, gains

obtained with CBT may be maintained after the end of treatment. Because the number of trained cognitive-behavioral therapists is scarce and costs of individual treatments are high, the use of group CBT may benefit children and adolescents with OCD, alone or in association with medication.

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