

eMedicine Specialties > Psychiatry > Adult

Obsessive-Compulsive Disorder

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Introduction

Background

Obsessive-compulsive disorder (OCD) is a relatively common, if not always recognized, disorder that is often associated with significant distress and impairment in functioning. Due to stigma and lack of recognition, individuals with OCD often must wait many years before they receive a correct diagnosis and indicated treatment. In severe presentations, this disorder is quite disabling and is appropriately characterized as an example of severe and persistent mental illness.

OCD is classified in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition, Text Revision (DSM-IV-TR)* as an anxiety disorder.^[1] It is characterized by distressing intrusive obsessive thoughts and/or repetitive compulsive actions (which may be physical or mental acts) that are clinically significant. The specific *DSM-IV-TR* criteria for OCD are as follows:

- The individual expresses either obsessions or compulsions. Obsessions are defined by the following 4 criteria.
 - Recurrent and persistent thoughts, impulses, or images are experienced at some time during the disturbance as intrusive and inappropriate and cause marked anxiety and distress. Those with this disorder recognize the craziness of these unwanted thoughts (such as fears of hurting their children) and would not act on them, but the thoughts are very disturbing and difficult to tell others about.
 - The thoughts, impulses, or images are not simply excessive worries about real-life problems.
 - The person attempts to suppress or ignore such thoughts, impulses, or images or to neutralize them with some other thought or action.
 - The person recognizes that the obsessional thoughts, impulses, or images are a product of his/her own mind (not imposed from without, as in thought insertion).
- Compulsions are defined by the following 2 criteria:
 - The person performs repetitive behaviors (eg, hand washing, ordering, checking) or mental acts (eg, praying, counting, repeating words silently) in response to an obsession or according to rules that must be applied rigidly.
 - The behaviors or mental acts are aimed at preventing or reducing distress or preventing some dreaded event or situation; however, these behaviors or mental acts either are not connected in a realistic way with what they are meant to neutralize or prevent or they are clearly excessive.
- At some point during the course of the disorder, the person recognizes that the obsessions or compulsions are excessive or unreasonable. This does not apply to children.
- The obsessions or compulsions cause marked distress; are time consuming (take >1 h/d); or significantly interfere with the person's normal routine, occupational or academic functioning, or usual social activities or relationships.

- If another Axis I disorder is present, the content of the obsessions or compulsions is not restricted to it, such as preoccupation with food and weight in the presence of an eating disorder, hair pulling in the presence of trichotillomania, concern with appearance in body dysmorphic disorder, preoccupation with drugs in substance use disorder, preoccupation with having a serious illness in hypochondriasis, preoccupation with sexual urges in paraphilia, or guilty ruminations in the presence of major depressive disorder.
- The disorder is not due to the direct physiologic effects of a substance or a general medical condition.
- The additional specification of "with poor insight" is made if, for most of the current episode, the person does not recognize that the symptoms are excessive or unreasonable.

Obsessions and their related compulsions (the latter also referred to as rituals) often fall into 1 or more of several common categories.

Table. Categorizing Obsessions and Compulsions

| Obsessions | Commonly Associated Compulsions |
|--|--|
| Fear of contamination | Washing, cleaning |
| Need for symmetry, precise arranging | Ordering, arranging, balancing, straightening until "just right" |
| Unwanted sexual or aggressive thoughts or images | Checking, praying, "undoing" actions, asking for reassurance |
| Doubts (eg, gas jets off, doors locked) | Repeated checking behaviors |
| Concerns about throwing away something valuable | Hoarding |

Individuals often have obsessions and compulsions in several categories, and may have other obsessions (eg, scrupulosity, somatic obsessions, physical or mental repeating rituals). Often, the first pathological obsession that an individual may experience is fear of contamination.

OCD should not be confused with obsessive-compulsive personality disorder (OCPD). The diagnosis of OCPD refers to an individual who has "a pervasive pattern of preoccupation with orderliness, perfectionism, and mental and interpersonal control, at the expense of flexibility, openness, and efficiency, beginning by early adulthood." They often display perfectionism, excessive devotion to work, rigidity, and/or miserliness (for further details, see *DSM-IV-TR*).^[1] Lay individuals may often describe an individual with such a personality as having OCD, but, just as lay individuals may describe someone who appears to have characteristics of multiple personalities as schizophrenic, this is also quite inaccurate. In fact, despite the unfortunate similarities in labels, relatively few individuals with OCD also meet criteria for OCPD, and the converse is also true.

Although OCD is categorized as an anxiety disorder in *DSM-IV-TR*, Dr. Eric Hollander has proposed that it should instead be considered an impulse control disorder along with other disorders such as trichotillomania, kleptomania, and pathological gambling, which would comprise an O-C spectrum of disorders^[2,3], although this remains a controversial proposal^[4].

Case vignette

Ms. A is a 32-year old married mother of 2, living with her family in a suburban community. She comes to a psychiatrist's office seeking help, with the strong encouragement of her husband, stating that she "just can't

cope anymore.”

In recent years, she has been spending increasing amounts of time, now at least 4 hours per day, in cleaning rituals. She will not allow anyone in the house to wear shoes, has declared the upstairs bathroom off limits, and will not let anyone else in the kitchen. She washes her hands with hot water and soap for at least 5 minutes after any occasion when she feels they have been contaminated and always wears gloves when outside. The skin on her hands is reddened and irritated. She spends up to an hour a day keeping items in the house in perfect placement (symmetrical and balanced), and she can become extremely angry if someone disturbs their placement. She spends approximately an hour every day arranging and rearranging her clothes in her closets, ordering each item on hangers in placement by size and color and correcting anything that is not hanging exactly symmetrically.

Over the last year she has also become phobic when seeing or hearing words pertaining to death, fearing that this could somehow lead to an untimely death for one of her children. If she reads such words or hears them on the radio or television, she will repeat the Lord's Prayer in her own mind 100 times; if she loses count she will start again. This has led to her general avoidance of reading and listening to radio or television, except at times when she feels the content will be “safe.”

Initially rather clean, neat, fastidious, and cautious, these potentially adaptive tendencies have grown very trying for her husband and 2 young children, and an inordinate amount of time and attention is taken up related to her perceived needs for rules for cleaning and household items to be arranged “just so.” She recognizes the craziness of her fears of the word “death,” but feels she cannot control her responses. She has become frustrated and unhappy coping with her fears and her burdensome responses, and although very reluctant to give up any of her protective rituals, she has agreed to seek professional advice, with the urging of an aunt who has confided her own successful struggles with similar problems.

Pathophysiology

The exact pathophysiologic process that underlies OCD has not been established. Research and treatment trials suggest that abnormalities in serotonin (5-HT) neurotransmission in the brain are meaningfully involved in this disorder. This is strongly supported by the efficacy of serotonin reuptake inhibitors (SRIs) in the treatment of OCD.^[5,6]

Evidence also suggests abnormalities in dopaminergic transmission in at least some cases of OCD. In some cohorts, Tourette disorder (also known as Tourette syndrome) and multiple chronic tics genetically co-vary with OCD in an autosomal dominant pattern. OCD symptoms in this group of patients show a preferential response to a combination of serotonin specific reuptake inhibitors (SSRIs) and antipsychotics.^[7]

Functional imaging studies in OCD have demonstrated some reproducible patterns of abnormality. Specifically, MRI and positron emission tomography (PET) scanning have shown increases in blood flow and metabolic activity in the orbitofrontal cortex, limbic structures, caudate, and thalamus, with a trend toward right-sided predominance. In some studies, these areas of overactivity have been shown to normalize following successful treatment with either SSRIs or cognitive-behavioral therapy (CBT).^[8] These findings suggest the hypothesis that the symptoms of OCD are driven by impaired intracortical inhibition of specific orbitofrontal-subcortical circuitry that mediates strong emotions and the autonomic responses to those emotions. Cingulotomy, a neurosurgical intervention sometimes used for severe and treatment-resistant OCD, interrupts this circuit (see Treatment).

Similar abnormalities of inhibition are observed in Tourette disorder, with a postulated abnormal modulation of basal ganglia activation.

More recently, attention has focused on glutamatergic abnormalities and possible glutamatergic treatments for OCD.^[9] Although modulated by serotonin and other neurotransmitters, the synapses in the cortico-striato-thalamo-cortical circuits thought to be centrally involved in the pathology of OCD principally employ the neurotransmitters glutamate and gamma-aminobutyric acid (GABA). Preclinical studies and several case reports and small clinical trials have provided some preliminary support for the therapeutic use of specific glutamatergic

agents.^[10,11] However, these agents (eg, memantine, N-acetylcysteine, riluzole, topiramate, glycine) have varied glutamatergic and other pharmacological effects, so if they are demonstrated to be effective, clarifying any therapeutic mechanism of action will be important.

The fact that obsessive-compulsive symptoms seem to often take very stereotypic forms has led some to hypothesize that the pathological disturbance causing OCD may be disinhibiting and exaggerating some built-in behavioral potential that we have, which under other circumstances might have an adaptive function (eg, primate grooming rituals).

Frequency

United States

Once believed to be rare, OCD was found to have a lifetime prevalence of 2.5% in the Epidemiological Catchment Area study.^[12] Current estimates of lifetime prevalence are generally in the range of 1.7-4%. Discovery of effective treatments and education of patients and health care providers have significantly increased the identification of individuals with OCD over the past decade.

International

International studies have shown a similar incidence and prevalence of OCD worldwide.

Mortality/Morbidity

- OCD is a chronic disorder. Without treatment, symptoms may wax and wane in intensity but rarely remit spontaneously. While many patients experience moderate symptoms, OCD can be a severe and disabling illness.
- Those with OCD often do not seek treatment. Many individuals with OCD delay for years before obtaining an evaluation for obsessive-compulsive (OC) symptoms. Patients with OCD often feel shame regarding their symptoms and put great effort into concealing them from family, friends, and health care providers.

Race

OCD appears to have a similar prevalence in different races and ethnicities, although specific pathological preoccupations may vary with culture and religion (eg, concerns about blaspheming are more common in religious Catholics and Orthodox Jews).

Sex

The overall prevalence of OCD is equal in males and females, although the disorder more commonly presents in males in childhood or adolescence, and in females in their twenties. Childhood-onset OCD is more common in males and more likely to be comorbid with attention deficit hyperactivity disorder (ADHD) and Tourette disorder.

It is not uncommon for women to experience the onset of OCD during a pregnancy, although those who already have OCD will not necessarily experience worsening of their symptoms during pregnancy. However, women commonly experience worsening of their OCD symptoms during the premenstrual time of their periods. Women who are pregnant or breastfeeding should collaborate with their physicians in making decisions about starting or continuing OCD medications.

Age

Symptoms usually begin in individuals aged 10-24 years. Childhood-onset OCD may have a higher rate of comorbidity with Tourette Disorder and ADHD.

Clinical

History

OCD is diagnosed primarily by presentation and history. Once the diagnosis is suspected, the Yale-Brown Obsessive Compulsive Scale (Y-BOCS)^[13] is an important tool in defining the range and severity of symptoms and monitoring the response to treatment. The Y-BOCS is comprised of 10 items, 5 for obsessions and 5 for compulsions, each scored 0-4 (total score 0-40). For both obsessions and compulsions, these items rate the time spent, interference with functioning, distress, resistance, and control. Elements that should be covered when obtaining the history, including suggestions for typical interview questions, include the following:^[14]

- Nature and severity of obsessive symptoms
 - Have you ever been bothered by thoughts that do not make any sense and keep coming back to you even when you try not to have them?
 - When you had these thoughts, did you try to get them out of your head? What would you try to do?
 - Where do you think these thoughts were coming from?
- Nature and severity of compulsive symptoms
 - Has there ever been anything that you had to do over and over again and could not resist doing, such as repeatedly washing your hands, counting up to a certain number, or checking something several times to make sure you have done it right?
 - What behavior did you have to do?
 - Why did you have to do the repetitive behavior?
 - How many times would you do it and how long would it take?
 - Do these thoughts or actions take more time than you think makes sense?
 - What effect do they have on your life?

Information appropriate for a full evaluation is as follows:

- Age of onset
- History of tics, either current or past
- Psychiatric review of systems and comorbidities
 - OCD is frequently attended by other psychiatric comorbid diagnoses, prominently including major depressive disorder, alcohol and/or substance use disorders, other anxiety disorders, impulse control disorders (eg, trichotillomania, skin-picking), and Tourette and tic disorders (perhaps 40% of individuals with Tourette disorder will have OCD). Therefore, in taking a psychiatric history, the focus should be on identifying such comorbidities, seeking to elicit the following:
 - Mood and anxiety symptoms
 - Somatoform disorders, especially hypochondriasis and body dysmorphic disorder
 - Eating disorders
 - Impulse control disorders, especially kleptomania and trichotillomania
 - ADHD
 - The co-occurrence of schizophrenia and OCD is more problematic for a variety of reasons. Not infrequently, individuals with schizophrenia do seem to have significant OC symptoms (sometimes, ironically, caused or exacerbated by the use of the very effective antipsychotic clozapine, whereas adjunctive antipsychotics may lessen treatment-resistant OC symptoms in those who do not have schizophrenia). When OC symptoms are present in someone who has schizophrenia, they may meet criteria for a diagnosis of OCD, but such patients often respond poorly to the usual OCD treatments, and perhaps OCD in schizophrenia has a different pathophysiology.

- Family history of OCD, Tourette disorder, tics, ADHD, and other psychiatric diagnose
- Current or past substance abuse or dependence
- Antecedent infections, especially streptococcal and herpetic infection
- Common obsessions include the following:
 - Contamination
 - Safety
 - Doubting one's memory or perception
 - Scrupulosity (need to do the right thing, fear of committing a transgression, often religious)
 - Need for order or symmetry
 - Unwanted, intrusive sexual/aggressive thought
- Common compulsions include the following:
 - Cleaning/washing
 - Checking (checking locks, stove, iron, safety of children)
 - Counting/repeating actions a certain number of times or until it "feels right"
 - Arranging objects
 - Touching/tapping objects
 - Hoarding
 - Confessing/seeking reassurance
 - List making

Physical

- A complete Mental Status Examination should be performed. The patient should be evaluated for orientation, memory, disturbances of mood and affect, presence of hallucinations, delusions, suicidal and homicidal risk, and judgment (including whether insight into the irrational nature of their symptoms is still present).
- Evaluate all patients with OCD for the presence of Tourette disorder or other tic disorders, as these comorbid diagnoses may influence treatment strategy. The findings on neurologic and cognitive examination should otherwise be normal. Focal neurologic signs or evidence of cognitive impairment should prompt evaluation for other diagnoses.
- Skin findings in OCD may include the following:
 - Eczematous eruptions related to excessive washing
 - Hair loss related to trichotillomania or compulsive hair pulling
 - Excoriations related to neurodermatitis or compulsive skin picking

Causes

The cause of OCD is not known; however, the following factors are relevant:

- Genetic: Twin studies have supported strong heritability for OCD, with a genetic influence of 45-65% in studies in children, and 27-47% in adults.^[15] Monozygotic twins may be strikingly concordant for OCD (80-87%), compared with 47-50% concordance in dizygotic twins.^[16] Several genetic studies have supported linkages to a variety of serotonergic, dopaminergic, and glutamatergic genes.^[17,18,19,20,21] Other genes putatively linked to OCD have included those coding for catechol-O-methyltransferase (COMT), monoamine oxidase-A (MAO-A), brain-derived neurotrophic factor (BDNF), myelin oligodendrocyte glycoprotein (MOG), GABA-type B-receptor 1, and the mu opioid receptor, but these must be considered provisional associations at this time. In some cohorts, OCD, ADHD, and Tourette disorder/tic disorders co-vary in an autosomal dominant fashion with variable penetrance.

- **Infectious:** Case reports have been published of OCD with and without tics arising in children and young adults following acute group A streptococcal infections. Fewer reports cite herpes simplex virus as the apparent precipitating infectious event. It has been hypothesized that these infections trigger a CNS autoimmune response that results in neuropsychiatric symptoms (pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections [PANDAS]). A number of the poststreptococcal cases have reportedly improved following treatment with antibiotics.
- **Other neurological conditions:** Rare reports exist of OCD presenting as a manifestation of neurologic insults such as brain trauma, stimulant abuse, carbon monoxide poisoning.
- **Stress:** OCD symptoms can worsen with stress; however, stress does not appear to be an etiologic factor.
- **Interpersonal relationships**
 - OCD symptoms can interact negatively with interpersonal relationships, and families can become involved with the illness in a counterproductive way (eg, a patient with severe doubting obsessions may constantly ask reassurance for irrational fears from family members or significant others; constantly providing this can inhibit the patient from making attempts to work on their behavioral disturbances).
 - Parenting style or upbringing does not appear to be a causative factor in OCD.

Differential Diagnoses

| | |
|--|-------------------------------|
| Acute Respiratory Distress Syndrome | Huntington Disease Dementia |
| Anorexia Nervosa | Mental Retardation |
| Anxiety Disorders | Panic Disorder |
| Attention Deficit Hyperactivity Disorder | Phobic Disorders |
| Body Dysmorphic Disorder | Posttraumatic Stress Disorder |
| Bulimia | Rheumatic Fever |
| Cocaine-Related Psychiatric Disorders | Schizophrenia |
| Dementia Due to Head Trauma | Social Phobia |
| Depression | Somatoform Disorders |
| Hallucinogens | Tourette Syndrome |

Other Problems to Be Considered

Bipolar disorder (Manic-depressive illness)

Workup

Imaging Studies

Functional MRI and PET scanning have shown increases in blood flow and metabolic activity in the orbitofrontal cortex, limbic structures, caudate, and thalamus, with a trend toward right-sided predominance. In some studies, these areas of overactivity have been shown to normalize following successful treatment with either SSRIs or CBT.^[8] These imaging modalities, however, are of value for research, and not indicated for normal workups.

Treatment

Medical Care

The mainstays of treatment of obsessive-compulsive disorder (OCD) include pharmacotherapy, particular forms of behavior therapy (exposure and response prevention and some forms of CBT), education and family

interventions, and neurosurgical treatment in extremely refractory cases. A practice guideline for the treatment of OCD has recently been published by the American Psychiatric Association.^[22]

- Pharmacotherapy
 - First-line pharmacologic treatments are potent 5-HT reuptake inhibitors, such as the SSRIs (fluoxetine, fluvoxamine, sertraline, paroxetine, citalopram, escitalopram) and clomipramine (Anafranil), with possible alternatives including venlafaxine, a serotonin norepinephrine reuptake inhibitor (SNRI). All of these are commonly used to treat OCD, although not all have received an FDA indication for this disorder. Unlike in the case of major depression, complete or near-complete remission of OCD symptoms is rare with only serotonergic antidepressant treatment. More typically, perhaps half of patients may experience symptom reductions of 30-50%, as measured by the Y-BOCS, with many others failing to even achieve this degree of relief.
 - Doses above those needed for treatment of depression may be more effective for some patients. A therapeutic dose for 6-10 weeks may be required to observe a clinical response (see Medication). Response tends to be slow and continue for at least 12 weeks (the common duration of OCD pharmacologic clinical trials), unlike the use of these same antidepressants in the treatment of major depressive episodes, where responses are more often seen somewhat earlier.
 - Several treatment studies suggest a possible role for norepinephrine (NE) in cases of OCD. A subset of patients reportedly show greater clinical improvement with a combination of 5-HT and NE reuptake inhibition as compared to treatment with SSRIs alone. These have included patients treated with clomipramine (a tricyclic antidepressant [TCA] with both 5-HT and NE reuptake inhibition) and those whose SSRI treatment was augmented with an NE reuptake inhibitor such as desipramine.
- Behavior therapy
 - This is a first-line treatment that should be undertaken with a psychotherapist who has specific training and experience in behavior therapy (most commonly behaviorally-trained psychologists). Some patients will not undertake this therapy, with perhaps 25% rejecting it and 25% dropping out of behavioral therapy, but it should definitely be encouraged if a competent behavioral therapist is available.
 - Exposure and response (or ritual) prevention (ERP) is the important and specific core element in behavior therapy for OCD. The patient ranks OCD situations he or she perceives as threatening, and then the patient is systematically exposed to symptom triggers of gradually increasing intensity, while the patient is to suppress his or her usual ritualized response. This is generally challenging and often quite distressing for the patient, but when effectively done, promotes unlearning of the strong link that has existed between having an urge and giving into the urge. When a patient does not respond in the face of a potent trigger, extinction of the response can take place. Significant others should be involved when possible, and they may have to be willing to change their responses to the patient (eg, not provide requested reassurance to irrational doubts).
 - ERP is now usually administered as part of a broader program of CBT, specifically designed for OCD. Other elements of CBT that are used include identifying and challenging the cognitive distortions of OCD symptoms (eg, intolerance of uncertainty, black and white thinking, focusing on unlikely extreme possibilities instead of viewing the future in a balanced manner, ascribing overimportance to thoughts, excessive concern about the importance of one's thoughts, inflated sense of responsibility). After making the patient aware of his or her irrational thoughts, the therapist works to have the patient counter them with more rational thoughts and do cost/benefit analyses regarding performing his or her rituals.

Meditation and relaxation techniques may be useful, but not during active ERP, as the effectiveness of these exercises requires that the patient experience a significant level of discomfort and then not respond with his or her characteristic rituals. A patient may benefit from a

self-help book in conducting ERP (eg, Foa and Reid, 2001^[23]), and workbooks are available for CBT as well. When recommending such a book, the treating physician should be familiar with its content.

- Another related approach described by Dr. Jonathan Grayson focuses on getting the patient to accept living with uncertainty, as it relates to his or her obsessional ideas, and prepare an individualized script to reinforce this attitude.^[24]
- Psychodynamic psychotherapy alone has generally not been found helpful in ameliorating OCD symptoms. It may, however, be useful in working on a patient's resistance to accepting recommended treatments, or in appreciating the interpersonal effects that a patient's OCD symptoms are having on others.^[22]
- Strategies for treatment resistance
 - Strategies should always include an assessment of complicating diagnoses, medication compliance, drug dose, and duration of therapy.
 - The presence of a comorbid diagnosis that has not been addressed, such as depression or panic disorder, can interfere with clinical recovery and identification may guide the choice of interventions. Targeted interventions might include, for example, lithium or antipsychotic augmentation or ECT for depression.
- Interventions for patients with treatment resistance include the following:
 - Change or increase in medication (eg, increase dose or prescribe different SSRI or clomipramine)
 - More intensive CBT
- Other interventions, which have not received an FDA indication for OCD include the following:
 - Addition of an NE reuptake inhibitor, such as desipramine, to an SSRI, or a trial of venlafaxine
 - Addition of a typical or atypical antipsychotic, especially in patients with a history of tics
 - Augmentation with buspirone
 - Addition of inositol
 - Sole or augmented use of selected glutamatergic agents^[10,11]
 - Deep brain stimulation (DBS)^[25,26] or cingulotomy neurosurgery^[27] for severe and intractable cases

Some clinicians feel that individuals with comorbid Tourette disorder or with hoarding as their principal OCD symptom may be more likely to be treatment resistant, although there is significant variation in treatment response, regardless of the particular presenting symptomatology.

Surgical Care

- Neurosurgical treatment of OCD is performed at a limited number of centers and is reserved for patients with severe and refractory symptoms. The most common small series use a specific small lesion (eg, cingulotomy) or deep brain stimulation. Current clinical trials are also exploring the application of transcranial magnetic stimulation (TMS) for OCD, a noninvasive treatment approach.
- One surgical technique involves the stereotactic placement of bilateral lesions in the anterior cingulate cortex. A case series of 18 patients showed a 28% response rate, with an additional 17% showing a partial response. No significant adverse neurologic or cognitive sequelae were noted.
- A deep brain stimulation technique consists of implanting a device to electrically stimulate the subthalamic nucleus. A crossover study in 17 patients with severe, refractory OCD in which patients received 3 months of active stimulation and 3 months of sham stimulation in randomized order, found that there was significantly more improvement during the active stimulation periods. However, serious adverse events were substantial and included intracerebral hemorrhage and infection.^[26]

- In February 2009, the FDA approved the use of Reclaim Deep Brain Stimulation Therapy for individuals with chronic, severe OCD. This device is an implanted medical device that is designed to target a region called the ventral capsule/ventral striatum, which is in the anterior limb of the internal capsule of the brain.

Consultations

- While treatment approaches for OCD are now well described in the literature, many clinicians remain unfamiliar with the features and management of this disorder. Consultation should be sought if the treating physician is unfamiliar or uncomfortable with the diagnosis, or if they feel they have exhausted the interventions with which they feel comfortable.
- Neurosurgical treatment of OCD is available at only a limited number of medical centers. The Obsessive Compulsive Foundation can provide a listing of centers with experience in this area.

Medication

Only antidepressants that potently inhibit presynaptic reuptake of serotonin appear to be effective in treating OCD. Clomipramine (Anafranil) is the only TCA with this quality. The SSRIs are also effective. SSRIs have the advantages of ease of dosing and low toxicity in overdose. Available SSRIs include fluoxetine (Prozac), fluvoxamine (Luvox), paroxetine (Paxil), citalopram (Celexa), escitalopram (Lexapro), and sertraline (Zoloft).

The dual serotonin-norepinephrine reuptake inhibitor antidepressants (SNRIs) venlafaxine (Effexor) and duloxetine (Cymbalta) may also have efficacy in OCD, and they have safety and tolerability profiles comparable to those of the SSRIs, but neither has yet been FDA-approved specifically for treatment of OCD.

SSRIs are generally preferred over clomipramine in treating OCD. The adverse effect profiles of SSRIs are less prominent, so improved compliance is promoted. SSRIs do not have the cardiac arrhythmia risk associated with TCAs. Arrhythmia risk is especially pertinent in overdose, and suicide risk must always be considered when treating a child or adolescent with mood disorder.

Physicians are advised to be aware of the following information and use appropriate caution when considering treatment with SSRIs in the pediatric population.

In December 2003, the UK Medicines and Healthcare Products Regulatory Agency (MHRA) issued an advisory that most SSRIs are not suitable for use by persons younger than 18 years for treatment of "depressive illness." After review, this agency decided that the risks to pediatric patients outweighed the benefits of treatment with SSRIs, except fluoxetine (Prozac), which appeared to have a positive risk-benefit ratio in the treatment of depressive illness in patients younger than 18 years.

In October 2003, the FDA issued a public health advisory regarding reports of suicidality in pediatric patients being treated with antidepressant medications for major depressive disorder. This advisory reported suicidality (both ideation and attempts) in clinical trials of various antidepressant drugs in pediatric patients. The FDA asked that additional studies be performed because suicidality occurred in both treated and untreated patients with major depression and thus could not be definitively linked to drug treatment.

Upon further analysis of pooled clinical trial data suicidality was reportedly increased in children and adolescents being treated with SSRIs for depression (approximately 2% for those treated with placebo vs 4% for those on SSRIs, although no actual suicides occurred in either group). These clinical trials were unfortunately not designed to specifically and clearly assess suicidal thoughts and behaviors, and therefore included events not readily classified. The FDA issued a public health advisory in October of 2004^[28], mandating a black box warning for antidepressants. Antidepressant treatment of children and adolescents with depression then significantly decreased over the next 2 years, although apparently so did suicides for this population. In 2007, the FDA extended its warning to young adults.^[29]

Currently, evidence does not exist to associate an increased risk of suicide in patients with OCD and/or other anxiety disorders being treated with SSRIs. However, physicians should closely attend to whether treated patients have unusual uncomfortable adverse reactions (eg, akathisia), or if they might have comorbid bipolar disorder (which may involve only subtle hypomanic episodes), as occasionally antidepressant use seems to be associated with triggering dysphoria and sometimes manic episodes in such individuals. Children, adolescents, and young adults being treated with antidepressants should be closely and frequently monitored, particularly early in treatment, for any suicidal ideation or actions.

Antidepressants

SSRIs are used commonly. The tricyclic antidepressant clomipramine is also used, although often attended by more uncomfortable adverse effects.

Fluoxetine (Prozac)

Enhances serotonin activity due to selective reuptake inhibition at neuronal membrane. Highly protein-bound and metabolized by CYP450 2D6.

Dosing

Adult

20-80 mg/d PO; not to exceed 80 mg/d PO; divide into 2 or more doses when >40 mg/d

Pediatric

<12 years: 1 mg/kg/d PO; not to exceed 40 mg/d

>12 years: 1 mg/kg/d PO; not to exceed 60-80 mg/d

Interactions

May potentiate medications such as TCAs, SSRIs, phenothiazines, carbamazepine, flecainide, class 1C antiarrhythmics, and quinidine; serotonergic agents (eg, MAOI, tryptophan, sibutramine, other appetite suppressants) may induce serotonin syndrome

Contraindications

Documented hypersensitivity; concurrent MAOI therapy

Precautions

Pregnancy

C - Fetal risk revealed in studies in animals but not established or not studied in humans; may use if benefits outweigh risk to fetus

Precautions

Caution in hepatic impairment and history of seizures; MAOIs should be discontinued at least 14 d before initiating fluoxetine therapy; common adverse effects include restlessness, sexual dysfunction, GI upset, sleep disturbance, and headache

Paroxetine (Paxil)

Enhances serotonin activity due to selective reuptake inhibition at the neuronal membrane.

Dosing

Adult

20-80 mg/d PO

Pediatric

Not established

Interactions

Phenobarbital and phenytoin decrease effects of paroxetine; alcohol, cimetidine, sertraline, phenothiazines, and warfarin increase toxicity of paroxetine

Contraindications

Documented hypersensitivity; concurrent MAOI therapy; seizure disorder

Precautions**Pregnancy**

D - Fetal risk shown in humans; use only if benefits outweigh risk to fetus

Precautions

Cirrhosis; suicide attempt; SIADH; DM; breastfeeding; taper over 1-2 wk to avoid SSRI withdrawal syndrome; common adverse effects include fatigue, sexual dysfunction, and weight gain; caution in history of seizures, mania, renal disease, and cardiac disease

Sertraline (Zoloft)

Enhances serotonin activity due to selective reuptake inhibition at the neuronal membrane.

Dosing**Adult**

50-200 mg/d PO

Pediatric

<6 years: Not established

6-12 years: 25 mg/d PO; if tolerated, may increase by 50 mg/wk; not to exceed 200 mg/d PO

>12 years: Administer as in adults

Interactions

Increases toxicity of MAOIs, diazepam, tolbutamide, and warfarin

Contraindications

Documented hypersensitivity; concurrent MAOI therapy; seizure disorder

Precautions**Pregnancy**

C - Fetal risk revealed in studies in animals but not established or not studied in humans; may use if benefits outweigh risk to fetus

Precautions

Cirrhosis; suicide attempt; SIADH; DM; breastfeeding; common adverse effects include fatigue, sexual dysfunction, GI upset, and sleep disturbance; caution in preexisting seizure disorders; caution in those who have experienced a recent myocardial infarction and those who have unstable heart disease, hepatic impairment, or renal impairment

Citalopram (Celexa)

Enhances serotonin activity due to selective reuptake inhibition at the neuronal membrane. Also has the advantage of fewer potential drug interactions. Citalopram is a 50:50 racemate of r- and s-citalopram.

Dosing**Adult**

20-60 mg/d PO

Pediatric

Not established

Interactions

May be potentiated by azole antifungals, omeprazole, and macrolides; serotonin syndrome may be induced by buspirone, tramadol, MAOIs, and nefazodone

Contraindications

Documented hypersensitivity; concurrent MAOI therapy

Precautions**Pregnancy**

C - Fetal risk revealed in studies in animals but not established or not studied in humans; may use if benefits outweigh risk to fetus

Precautions

Cirrhosis; suicidal tendencies; SIADH; DM; breastfeeding; common adverse effects include fatigue and sexual dysfunction

Fluvoxamine (Luvox)

Enhances serotonin activity because of selective reuptake inhibition at the neuronal membrane.

Dosing**Adult**

100-300 mg/d PO divided bid/tid

Pediatric

<8 years: Not established

>8 years: 25 mg PO qhs; if tolerated, increase by 25 mg PO q4-7d; not to exceed 200 mg/d PO; if total daily dose >50 mg, administer in divided doses

Interactions

Potentiates triazolam, alprazolam, theophylline, warfarin, carbamazepine, methadone, beta-blockers, and diltiazem effects; smoking may increase serum levels

Contraindications

Documented hypersensitivity; concurrent MAOI therapy

Precautions**Pregnancy**

C - Fetal risk revealed in studies in animals but not established or not studied in humans; may use if benefits outweigh risk to fetus

Precautions

Cirrhosis; suicide attempt; SIADH; DM; breastfeeding; history of seizures; common adverse effects include fatigue, drowsiness, sexual dysfunction, sleep disturbance, and GI distress

Clomipramine (Anafranil)

Tricyclic antidepressant with potent NE and 5-HT reuptake inhibition.

Dosing**Adult**

75-250 mg PO qhs or in divided doses

Pediatric

<10 years: Not established

>10 years: 25 mg/d PO, advancing over 2 wk to 3 mg/kg/d or 100 mg/d PO in divided doses, whichever is smaller; if tolerated, advance to maximum dose of 3 mg/kg/d or 200 mg/d PO, whichever is smaller; after titration to a therapeutic dose, may administer hs

Interactions

Potentiates CNS depressants, anticholinergics, sympathomimetics, and other protein-bound drugs; potentiated by CYP2D6 inhibitors; SSRIs

Contraindications

Documented hypersensitivity; concurrent use of MAOI or other TCA

Precautions**Pregnancy**

C - Fetal risk revealed in studies in animals but not established or not studied in humans; may use if benefits outweigh risk to fetus

Precautions

Suicidal tendencies or risk of overdose; seizure disorder; cardiac disease; glaucoma; urinary retention

Escitalopram (Lexapro)

SSRI and S-enantiomer of citalopram. Used for the treatment of depression. Mechanism of action is thought to be potentiation of serotonergic activity in CNS resulting from inhibition of CNS neuronal reuptake of serotonin. Onset of depression relief may be obtained after 1-2 wk, which is sooner than other antidepressants.

Dosing**Adult**

10 mg PO qd initially; if needed, may increase to 20 mg/d after 1 wk

Pediatric

Not established

Interactions

Primarily metabolized by CYP450 3A4 and 2C19; coadministration with alcohol or other centrally acting drugs increases CNS depression; cimetidine increases AUC and maximum serum concentration; coadministration with sumatriptan and SSRIs has caused weakness and hyperreflexia

Contraindications

Documented hypersensitivity; administration within 14 d of receiving MAOI

Precautions**Pregnancy**

C - Fetal risk revealed in studies in animals but not established or not studied in humans; may use if benefits outweigh risk to fetus

Precautions

Caution with history of seizures, mania, suicide; common adverse effects include insomnia, ejaculation disorder (primarily ejaculatory delay), nausea, sweating, fatigue, and somnolence

Follow-up

Further Inpatient Care

- Obsessive-compulsive disorder (OCD) typically is treated in an outpatient setting.
- Consider hospitalization if symptoms are sufficiently severe to impair a patient's ability to care for himself/herself safely at home or if a risk of suicide exists. If admission is necessary, admitting the patient to an inpatient unit whose staff is familiar with OCD and behavioral therapy is preferable.

Further Outpatient Care

- OCD is a chronic illness that usually can be treated in an outpatient setting. The mainstays of treatment are behavior therapy and use of serotonergic antidepressant medications.
- Patients who have achieved remission of symptoms with behavior therapy alone may never require medication and may only need to return to therapy if they have an exacerbation of their illness. Also, a subset of patients has been treated with a combined approach; these patients can discontinue medication, maintaining a remission with behavioral interventions alone. However, many patients require ongoing medication to prevent relapse.

Inpatient & Outpatient Medications

- SSRIs or clomipramine should be advanced as tolerated to a therapeutic dose. Clinical response may take 6-10 weeks to become apparent. The clinician should review adequacy of dose, duration of therapy, and compliance before deciding that a medication is ineffective.
- Antipsychotics, such as haloperidol, olanzapine, and risperidone, have been used with some success in augmenting SSRIs in patients with OCD, particularly in those with comorbid Tourette disorder or other tic disorders.^[7]

Transfer

If a patient has symptoms of sufficient severity to warrant hospitalization, consider transfer to a psychiatric unit with expertise in treating OCD.

Prognosis

- OCD is an illness with a wide range of potential severity.
 - Overall, close to 70% of patients entering treatment experience a significant improvement in their symptoms. However, OCD remains a chronic illness, with symptoms that may wax and wane during the life of the patient.
 - Roughly 15% of patients can show a progressive worsening of symptoms or deterioration in functioning over time.
 - Approximately 5% of patients have a complete remission of symptoms between episodes of exacerbation.
 - Pharmacological treatment is often prescribed on a continuing basis; if a successfully treated individual discontinues their medication regimen, relapse is not uncommon. However, patients who successfully complete a course of CBT (perhaps as few as 12-20 sessions) may experience enduring relief even after the treatment, although some evidence shows that having CBT continue in some extended but less frequent fashion may further decrease the risk of relapse.
- A certain percentage of patients may have disabling, treatment-resistant symptoms.
 - These patients may require multiple medication trials and/or referral to a research center.
 - A small subgroup of these patients may be candidates for neurosurgical intervention.

Patient Education

- Education about the nature and treatment of OCD is essential. As with many psychiatric disorders, patients and their families often have misconceptions about the illness and its management. Information should be provided about the neuropsychiatric source of the symptoms, as opposed to having families unnecessarily blame themselves for causing the disorder.
- Some of the limited experience the public has with modestly accurate portrayals of OCD come from the visual media (eg, Jack Nicholson in *As Good As It Gets*, Nicolas Cage in *Matchstick Men*, Leonardo DiCaprio in *The Aviator*—the screen saga of Howard Hughes' life, and Tony Shalhoub in the television series *Monk*). A more helpful and very well-written book for the public, which became a national best-seller, is Dr. Judith Rapoport's *The Boy Who Couldn't Stop Washing*^[30], telling the story of the recognition and identification of effective treatments for individuals with OCD.
- More usefully, patients and their families should be provided information on support groups and have opportunities to discuss the impact the illness has had on their self-experience and on their relationships. The Obsessive-Compulsive Foundation (203-401-2070) is a self-help and family organization founded in 1986 that offers information and resources regarding OCD and related disorders (including contact information for various types of affiliated support groups, contact information listing psychiatrists and therapists who are experienced in the treatment of OCD, research opportunities, book reviews, etc).
- Some other organizations offer more specialized resources, (eg, San Francisco Bay Area Internet Guide for Extreme Hoarding Behavior), the Madison Institute of Medicine's Obsessive Compulsive Information Center, which provides information and a monthly newsletter for individuals with OCD symptoms of scrupulosity about religious/moral issues.
- A more complete listing of OCD resources appears as an appendix in the APA Practice Guideline for OCD.^[22]
- Several self-help books are also available, including Drs. Edna Foa and Reid Wilson's book^[23], which can add CBT-style self-treatment to the educational experience they provide.

- Other useful Web sites include the following:
 - The National Institute of Mental Health (NIMH), Obsessive-Compulsive Disorder, OCD
 - The Mayo Clinic, Obsessive-compulsive disorder (OCD)
 - WebMD, Obsessive-Compulsive Disorder

Miscellaneous

Medicolegal Pitfalls

- The most common medical pitfall in the treatment of OCD is the failure to make the diagnosis. Clinicians should be familiar with the diagnostic criteria and consider OCD in their differential when evaluating tics, mood and anxiety disorders, or other compulsive behaviors such as trichotillomania or neurodermatitis.
- Another common pitfall is the failure to identify the comorbid diagnoses frequently encountered in patients with OCD. These can include the following:
 - Major depressive disorder (30-70%)
 - Panic disorder (14%, 35% lifetime incidence)
 - Body dysmorphic disorder (14.5%)
 - Generalized anxiety disorder (20%)
 - Social phobia and simple phobia (24%)
 - ADHD
 - Tourette syndrome (5-7%)
 - Other tic disorders (20-30%)
 - Trichotillomania
 - Neurodermatitis
 - Idiopathic torticollis
 - Substance abuse
 - Eating disorders
- Identification of these diagnoses guides treatment interventions as well as identifies those patients who are at higher risk for suicide or self-harm. Not surprisingly, patients with OCD have a significant risk for suicide, which increases with the severity of symptoms and the number of concurrent psychiatric diagnoses.

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