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Treatment of obsessive-compulsive disorders (OCD) and obsessive-compulsive-related disorders (OCRD)

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Summary

The purpose of this article is to present an overview of current knowledge on the treatment of obsessive-compulsive and obsessive-compulsive-related disorders (OCRD – according to DSM-5). The article presents commonly used pharmacological treatments and psychotherapy, as well as surgical and other forms of treatment. According to the analyses that have been made, the variety of responses to the pharmacological treatment of obsessive-compulsive disorders (OCD) depending on the kinds of symptoms is not relevant enough to justify these other forms of treatment. Instead, the choice of medication should be made based on other factors, such as the severity of symptoms and the level of insight into the illness or the symptoms of other disorders co-occurring with the obsessions. These factors are also significant in psychotherapy, but in this case, the dependency between the types of obsessions and compulsions and the therapeutic approach has greater importance. Generally speaking, in OCRD treatment, a tendency to use other forms of treatment can be observed for disorders based mainly on the mechanism of compulsivity or impulsivity. Hopes for a more effective treatment are related to the types of pharmacological treatment and modifications of psychotherapeutic methods based on the development happening in the cognitive behavioral approach.

Key words: obsessive-compulsive and related disorders, pharmacotherapy, psychotherapy

1. Introduction

Obsessive-compulsive disorder (OCD) causes serious difficulties in the everyday lives of people suffering from it; especially in its acute form, it may significantly hinder individuals' psychosocial functioning [1]. The importance of this issue in the individual, family and social dimensions is backed by statistical data, according to which ca. 2–3% of the population suffer from OCD [2, as cited in: 3]. Almost all people with

OCD experience difficulties in relations (92% have problems with starting a relation because of low self-esteem; 73% experience problems in their families and 62% in friendships, which are related to the risk of parting), with nearly half of them having problems in the professional area (58% have trouble with continuing education, 47% experience difficulty with keeping a job, and 40% are unable to work); 13% attempt suicide as a result of suffering from obsessions [4, as cited in: 1]. Over 90% of people with OCD meet the criteria related to other psychological disorders [2, 5, as cited in: 3], including depression, bipolar disorder, eating disorders, anxiety disorders, personality disorders, and schizophrenia [1, 3], thus complicating the diagnostic process and treatment. Another difficulty is caused by a delay in the start of the treatment because of the 'embarrassing' nature of OCD (not to mention a lack of insight into the illness); on average, it takes 10 years from the first symptoms to appear before help is sought and around 17 years until appropriate treatment is undergone [4, as cited in: 1].

Ongoing discussions on the nature of the obsessions – whether they are a symptom, a consequence, or the cause of anxiety disorders – have resulted in changes in the American classification of mental disorders DSM–5 [3, 6]. OCD, traditionally classified as an anxiety disorder, has been included in a newly created separate group – 'Obsessive-Compulsive and Related Disorders' (OCRD) [6] – which includes, apart from OCD, four other disorders: body dysmorphic disorder, trichotillomania (hair-pulling disorder), hoarding disorder, and dermatillomania (excoriation disorder or skin-picking disorder).

This change expresses a different understanding of the psychopathology of OCD, which considers compulsiveness (understood as a tendency to engage in repetitive actions) as the basis of these disorders. As opposed to the previous understanding of OCD, compulsiveness theory assumes that anxiety has no direct functional relation to compulsive symptoms [7, as cited in: 3]. However, compulsiveness is a characteristic feature for many other neuropsychiatric disorders, so it has resulted in an issue of which disorders should be or not be included in the OCRD group. In the case of DSM-5, an arbitrary decision was made as a compromise between those against the changes in the OCD classification and advocates of creating a broad transdiagnostic category of OCD [8, as cited in: 3] to include the above-mentioned disorders in OCRD but to exclude disorders such as hypochondriasis or olfactory reference syndrome (which, similar to body dysmorphic disorder, involves compulsive behaviors, included in the proposed changes to ICD-11).

With the doubts concerning OCRD put aside, OCD itself is a complex disorder that shows a range of symptoms. This variety is commonly limited by grouping the symptoms into the following conceptually coherent subtypes: (1) cleaning (contamination obsessions with cleaning/washing compulsions); (2) symmetry (symmetry obsessions and repetition, ordering and counting compulsions); (3) intrusive or taboo thoughts (e.g., sexually or religiously aggressive obsessions and the compulsions related to them – neutralizing behaviors); and (4) harm (fear of harming oneself or others and checking compulsions). The subtype involving compulsive hoarding, previously included here, has been made a separate disorder belonging to the OCRD group. Other obsessions and compulsions may include doubts concerning everyday activities (leaving the door

open, leaving the gas on), the need to possess/memorize information (license plates, ads etc.), an obsessive focus on bodily functions (so-called somatic obsessions), and intrusive, non-aggressive fantasies and thoughts or superstitions ('black cat', 'graveyard'), lucky/unlucky numbers, colors etc. One should note that patients often have symptoms from more than one subtype [6].

The diagnostic criteria for OCD in DSM-5 are relatively simple. The obsessions and/or compulsions must be time consuming (at least an hour per day) or cause significant suffering or a substantial disruption of one's functioning in the social, professional or other important areas. Because of the fact that insight into the illness affects its prognosis, such an insight has to be specified for all patients diagnosed with OCD. The level of insight may be (1) good or satisfactory, (2) poor, or (3) no insight/delusional convictions. No insight means that the patient thinks with all certainty that the beliefs related to OCD are entirely true. This usually involves a lack of motivation for treatment and poor prognosis. Apart from an assessment of the level of insight, whether the patient had or has chronic tic disorder should be investigated [6].

The aim of this work is to present the current view on the issue of treatment of obsessive-compulsive and related disorders according to DSM-5, taking into account potential differences in the therapeutic approach that may result from greater heterogeneity of the included disorders. We have prepared an overview of various types of OCD/OCRD treatments by using available digital databases (PubMed, Cochrane, PsycINFO), meta-analyses, review works, randomized clinical trails' outcomes, and handbooks in English and Polish. We hope that this will be helpful primarily for clinicians and for people helping others who are suffering from obsessions and related disorders on a daily basis.

The diversity of OCD symptoms begs the question of whether it is a disorder with one or multiple causes. As an attempt to answer this question, a number of models presenting different groups of obsessive-compulsive symptoms, such as biological, cognitive and behavioral models, have been created. Existing models, however, are far from giving a sufficient explanation of why one person has obsessions related to contracting germs and excessive hygiene, whereas someone else has obsessions and compulsions connected to symmetry and counting, and another person has both classes of symptoms at once [9]. One of the elements included in the biological model of OCD is the reaction to treatment. Knowledge about the differences in reacting to the treatment of OCD/OCRD, apart from its cognitive value, could have great clinical value and help in the choice of the most efficient type of treatment for a given type of disorder or the nature of the symptoms it involves. As can be seen from an overview of the medical literature, the phenomenology and symptomatology of OCD and OCRD are not entirely coherent. Thus, a tendency to differently approach various disorders within the group can be observed, depending on the presence/intensity of obsessiveness, compulsiveness and impulsivity in the psychopathological picture [4, 10].

Before we proceed to discuss the issues related to the treatment both of the specific subtypes of OCD and the disorders included in OCRD, let us generally present the current standards for treating OCD.

Behavioral therapy is considered the first-choice treatment for OCD. It involves the use of exposure and response prevention (ERP), as well as anti-depressant medication inhibiting serotonin reuptake from the synaptic gap (serotonin reuptake inhibitors – SRI). This group of medications includes selective serotonin reuptake inhibitors (SSRIs), such as fluoxetine, sertraline, fluvoxamine, paroxetine, citalopram and escitalopram, as well as clomipramine, which is a non-SSRI. Behavioral therapy is often complemented with additional cognitive techniques, called cognitive behavioral therapy (CBT). If the above-mentioned methods and medications are insufficient, other treatment methods are added. Below, we will present an algorithm for treating OCD based on the recommendations of the American Psychiatric Association (APA) [11], modified to consider recent studies on the efficacy of OCD treatment [12].

Table 1. **Algorithm for treating OCD patients [11, 12]**

Specification	Therapy type	Acute phase treatment duration	Supportive treatment
I – First-choice treatment	ERP/CBT	13–20 sessions once a week	Booster sessions every 3–6 months
NO IMPROVEMNT			
II	SSRI or SSRI + CBT/ERP	SSRI – 8–12 weeks (4–6 weeks with maximum tolerated dose) SSRI – as above CBT/ERP – 13–20 sessions once a week or daily sessions for 3 weeks	1–2 years, then gradual dose reduction in months or longer as above, booster sessions every 3–6 months
POOR OR NO IMPROVEMENT		PARTIAL IMPROVEMENT	
III A	– Switch to a different SSRI (+ CBT, if not used previously) – Switch to clomipramine (+ CBT, if not used previously) – Switch to another, not previously used SSRI – Switch to venlafaxine		
III B		– Add CBT/ERP to SSRI (if not used previously) – Add second-generation antipsychotics to SSRI (aripiprazole, risperidone) – Add memantine to SSRI – Add lamotrigine to SSRI – Add 5-HT3 antagonist to SSRI (ondansetron, granisetron)	
NO IMPROVEMNT			

table continued on the next page

IV (Experimental methods)	– SSRI in ultra-high dose – Add clomipramine to SSRI – Ketamine – Transcranial magnetic stimulation – Transcranial direct current stimulation – Riluzole/N-acetylcysteine
NO IMPROVEMNT	
V	– Deep brain stimulation – Ablative brain surgery

2. Pharmacological treatment

2.1. Anti-depressants from the SRI group

The following table presents an overview of all serotonergic anti-depressant medications recommended in OCD monotherapy.

Table 2. **Suggested dosage of serotonin reuptake inhibitors (SRIs) in OCD monotherapy [11,12]**

Medication	Recommended dose	Occasionally used maximum dose 1
escitalopram	20–30 mg	120 mg
fluoxetine	60–80 mg	120 mg
fluvoxamine	200–300 mg	450 mg
paroxetine	40–60 mg	100 mg
sertraline	150–200 mg	400 mg
citalopram	40–60 mg	120 mg
clomipramine	150–225 mg	–

[1] Such doses are sometimes used for fast metabolizers or patients who do not experience side effects but, at the same time, do not show clinical improvement after 8 weeks or more of taking the conventional maximum dose of the medication [11].

Studies comparing different SSRIs [13–15, as cited in: 12] did not show any advantage of one of them over the others. When choosing SSRI type, one should consider the differences in possible side effects and interactions with other medications that may be used by the patient. Compared with depression treatment, OCD treatment involves using higher doses of SSRIs, so clinicians should remember the potential risk of arrhythmia related to using high doses of citalopram. In case there is no improvement after using an SSRI medication, treatment with another medication of this type should be attempted. A total lack of response in the second attempt justifies a switch to another SSRI. The APA recommends a treatment pattern involving an increase in the medication dose to its maximum during 4–6 weeks and maintaining the dose for

the next 6–8 weeks to appropriately assess the efficacy of the medication. If at least partial response does not occur, adding booster medication is suggested, such as second-generation antipsychotics, instead of switching to another SSRI because this change could render a previously used medication ineffective.

As to clomipramine, the only non-SSRI recommended in OCD treatment, its efficacy is comparable to that of SSRIs in head-to-head clinical trials [16, as cited in: 10], but the meta-analyses of placebo-controlled trials point to a slight advantage of clomipramine [17, as cited in: 10]. The reason for selecting SSRIs as first-choice medications over clomipramine is that with SSRIs, side effects occur less frequently and have lower severity.

The effect size of OCD symptom reduction in a meta-analysis that included 18 randomized treatment attempts using SRIs [10, as cited in: 7] was 0.91. However, most patients showing positive response to the treatment did not recover fully, and the percentage of relapse varied from 24 to 89% [18–20, as cited in: 9]. These are much higher figures than the 12% relapse rate of patients who underwent ERP in behavioral therapy [21, as cited in: 9]. Still, it needs to be noted that the data pointing to the higher efficacy/sustainability of psychotherapy than that of pharmacological treatment may stem from the fact that patients committing to psychotherapy are probably more motivated to undergo treatment and have less severe anxiety, allowing them to be exposed to the stimuli.

For children with OCD, the effects of treatment with SRI are worse than those with adults (the average effect size is 0.46) [22, as cited in: 9]. The available study results indicate a significant advantage of CBT over pharmacological treatment in the case of children and adolescents because of the safety, higher efficacy and more permanent effects of CBT. The factors related to a worse response to treatment are limited insight, difficulties of the family adjusting to the disease of its member, accompanying disorders, the nature of the symptoms and cognitive deficits [23].

Until recently, SRI medications were considered to have lower efficacy in treating hoarding disorder [24–26, as cited in: 27]. However, the findings of recent studies have not shown any statistically significant differences in responses to treatment with SRI compared with that for other disorders from the OCD spectrum [28, 29, as cited in: 27]. Symptomatic improvement after pharmacological treatment of hoarding disorder seems to be at least as good as that with CBT. However, the combination of pharmacotherapy and CBT in treating hoarding disorder can even be more effective than either of them separately [30]. It is likewise significant that pharmacological treatment causes improvement in anxiety disorders, depression disorders, or ADHD, often co-occurring with compulsive hoarding.

Furthermore, with body dysmorphic disorder, SSRIs are considered to be the first-choice medications, and if they are not effective, clomipramine is used instead (with adult patients) [10]. Trichotillomania is thought to be particularly resistant to treatment, and there is no evidence of the efficacy of SRIs in the treatment of this disorder [9]. In treating trichotillomania, similar to dermatillomania, SSRI and clomipramine are

also used (treatment with naltrexone, olanzapine and pimozide has also been attempted) despite the lack of convincing evidence for their efficacy; however, the best results are achieved with CBT, particularly habit reversal training [31].

Obsessions without their accompanying compulsions (most frequently of a sexual, religious or somatic nature) predict a weaker response to pharmacological treatment (clomipramine) [32, as cited in: 27], which questions the earlier opinion that the pharmacotherapy of 'pure' obsessions has an advantage over CBT. In particular, obsessions of a somatic nature show a significantly more frequent lack of response to SRIs [28, as cited in: 27]. However, a recent study shows that somatic obsessions may be related to a better response to phenelzine, a MAO inhibitor [33, as cited in: 27].

To sum up, apart from a general suggestion that SRI pharmacotherapy may be more effective in treating obsessions than in treating compulsions, which are easier to treat with psychotherapy (see chapter Psychotherapy), the sole nature of OCD symptoms does not seem to be useful as a guideline for planning pharmacological treatment. This is why patients with OCD for whom pharmacotherapy is considered should receive SRI medication regardless of OCD subtype [27].

2.2. Other anti-depressants

If treating OCD with SRI medications brings no response, using medications, such as venlafaxine or mirtazapine, has been justified and proven to be effective [34, as cited in: 10]. In an open trial (unfortunately, there has been no controlled trial so far), it has been proven that patients with compulsive hoarding have shown a statistically significant improvement after taking venlafaxine [35]. Another anti-depressant, bupropion, whose working mechanism affects noradrenergic and dopaminergic transmission, has been shown to reduce the intensity of trichotillomania [36, as cited in: 37].

2.3. Neuroleptics

Neuroleptics are used as medications that enhance the effects of SSRI when these effects are insufficient. According to current standards, if there is no response to an SSRI drug, another SSRI should be used first. Neuroleptics are a means for pharmacotherapy potentiation after a third unsuccessful attempt of treatment with SSRI. They can also be used earlier if SSRI brought partial improvement [12]. Reinforcing SRI with neuroleptics may be beneficial if there are factors that heighten the probability of the positive results of pharmacological treatment, such as obsessions of higher severity [38, as cited in: 27], poor insight [39, as cited in: 27] and the co-occurrence of schizotypal personality disorder and the presence of tics [40–42, as cited in: 27]. Although the results of such a treatment seem promising, only a third of OCD patients resistant to SRI treatment show a significant clinical improvement after the addition of antipsychotics [27]. Including neuroleptics may be especially justified in the case of compulsive hoarding, in which the above-mentioned factors are most common (par-

ticularly poor insight and schizotypal personality disorder). The results of experiments on animal models have confirmed the important role of the dopaminergic system in compulsive hoarding [27]. The features in question, apart from hoarding, occur more often in obsessions about symmetry, ordering and numbering, but they are not specific to a particular OCD subtype [27].

A few placebo-controlled trials indicate the efficacy of olanzapine [43, as cited in: 10] in treating trichotillomania. As for OCD itself, the current view, which is based on studies with adult patients who are resistant to treatment, indicates that aripiprazole (10–15 mg/d) and risperidone (0.5–2 mg/d) are proven effective. Olanzapine probably also shows certain efficacy, whereas quetiapine should rather be considered ineffective [44]. The matter of using second-generation antipsychotics in treating OCD/OCRD is further complicated by the risk of inducing or intensifying obsessive-compulsive symptoms by these medications, which has been observed in patients treated for schizophrenia. The highest risk of such effects was observed whilst using clozapine and olanzapine (after clozapine, as much as 20–28% of the patients showed obsessive-compulsive symptoms which were absent before) [45]. Another issue that makes the use of neuroleptics even more controversial is their numerous side effects, especially metabolic ones, observed in long-term treatment. Because of these concerns, the decision to attempt treatment with neuroleptics should be considered only in the case of a severe course of the disorder, causing serious disruption in the functioning and substantial suffering of the patient, usually combined with no insight or even delusional convictions related to the symptoms.

2.4. Glutamate modulators

Because of the alleged role of glutamatergic dysfunction in the pathogenesis of OCD, the recent years have seen an increased number of trials using glutamate modulators. There are a few reports about patients with prominent symptoms of compulsive hoarding who responded well to treatment with glutamate modulators [31, 46]. Information-processing deficits, which may be the basis of the hoarding disorder, including decision making, organizing and categorizing deficits, seem to be a promising area for future pharmacotherapeutic approaches [30].

Riluzole is an anti-glutamatergic agent that inhibits the release of glutamate and reduces the neuronal uptake of glutamate, dopamine and GABA, which may be related to a significant reduction of obsessive-compulsive symptoms [18, 46, 47]. It is a drug currently used to treat amyotrophic lateral sclerosis.

Memantine, a glutamate modulator working as an uncompetitive NMDA receptor blocker, has also given positive results in a placebo-controlled trial, showing a reduction of OCD symptoms [48, as cited in: 31]. By blocking NMDA receptors, memantine probably affects their prolonged activity caused by excessive glutamate production. It is currently used for treating dementia in Alzheimer's disease.

In pre-clinical trials, N-acetylcysteine (NAC) has been shown to protect glial cells from the toxic influence of glutamate by lowering its level and increasing the level of glutathione. Apart from its impact on glutamate release, NAC has antioxidant properties. It also influences the dopaminergic system. There have been attempts to use NAC in treating trichotillomania, body dysmorphic disorder and nail-biting disorder [10, 31, 49]. NAC is mostly tested as a means to reinforce the effects of SSRI (fluvoxamine, fluoxetine), but the results are inconclusive [31].

Lamotrigine is a phenyltriazine derivative, an antiepileptic drug and mood stabilizer, which has membrane-stabilizing effects obtained by blocking potential-dependent sodium channels, thus blocking the release of excitatory amino acids (glutamic acid). At least two double-blind clinical studies confirmed the efficacy of lamotrigine added to SSRI in treatment-resistant OCD [12]. There have also been reports about the efficacy of lamotrigine [50] and other antiepileptic medications – topiramate [51] and oxcarbazepine [52, as cited in: 37], in treating trichotillomania, although their working mechanism in treating this disorder is unknown (for the first two drugs, it may be related to their impact on the glutamatergic system). Unfortunately, similar to the use of neuroleptics for treating schizophrenia, there have been reports about obsessive-compulsive symptoms being induced whilst treating bipolar disorder with lamotrigine [53].

2.5. 5-HT-3 receptor antagonist medication

Ondansetron and granisetron, medications currently used as antiemetics, have been reported to be effective and well tolerated. Because of the methodological weaknesses of available trials, these drugs are only recommended after trying glutamate modulators [12].

2.6. Medications stimulating the cingulate cortex

The dysfunction of the anterior cingulate cortex is considered significant in the symptoms and neurocognitive deficits related to compulsive hoarding [54]. Because of this, medication that increases the activity of the cingulate cortex, such as psychostimulants, modafinil and cholinesterase inhibitors, could potentially be effective in treating this disorder [30].

2.7. Antibiotics

Some cases of OCD occurring in childhood may be the result of a streptococcal infection, which causes autoimmune inflammation in the basal ganglia. Such cases belong to pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections (PANDAS). In such situations, OCD may sometimes be effectively treated with antibiotics, provided that the intervention occurred soon enough in the

course of the disease. However, OCD related to an infection constitutes fewer than 10% of early-onset cases [55].

2.8. Augmentation

To increase the effectiveness of SSRIs in clinical practice, other groups medications are added (see Table 3)

Table 3. **Medication used in augmenting treatment-resistant OCD [12]**

Medication	Recommended dose
Aripiprazole	5–10 mg
Risperidone	1–3 mg
Memantine	10–20 mg
Lamotrigine	100 mg
Ondansetron	2–4 mg twice a day
Granisetron	1 mg twice a day

The strongest proof of efficacy in augmenting pharmacotherapy-resistant OCD has been shown for atypical antipsychotics – aripiprazole and risperidone [12].

3. Psychotherapy

Cognitive behavioral therapy has an unquestionable position in the treatment of OCD. The most effective form of psychotherapy, considered by most to be purely behavioral, is ERP (exposure and response prevention). The effect size for this type of therapy is 1.16 to 1.72. For treatment completers, the effects last for at least 2 years. Studies that examine the efficacy of clomipramine, ERP and the combination of both have shown that psychotherapy is more effective than pharmacotherapy (55% vs. 31%) and that the combination of both is only slightly more effective than psychotherapy alone (the difference was statistically insignificant) [9]. The effects of ERP are traditionally understood as habituation [56, as cited in: 10], but more recent theories stress the importance of inhibitory learning, the tolerance of negative affect and changes in beliefs about feared stimuli and about the emotion of fear itself [57–59, as cited in: 10].

Research shows that ERP relates to a general toning down of the compulsions. In the case of ERP, fear of contamination gives particularly good predictions of improvement. Patients with cleaning obsessions (contamination obsessions and cleaning/washing compulsions) and harm obsessions (fear of harming oneself or others and checking compulsions) show a significantly better progress after ERP and CBT than patients with compulsive hoarding [27]. Washing and cleaning compulsions predict a better response to ERP and CBT [60, 38, as cited in: 27] than to SRI [25, 29, 61, as cited in: 27]. One of the difficulties with using ERP may be the requirement for the

patients to experience a high level of anxiety and discomfort caused by this technique. Because of this, ca. 25% of all patients refuse ERP [62, as cited in: 27], 20% drop out [63, as cited in: 27] and 25% do not stick to it [64, as cited in: 27]. Around 50–60% of OCD patients show a clinically significant improvement after ERP, but only 25% stop experiencing obsessions [65, as cited in: 21].

ERP and CBT are less effective in the case of compulsive hoarding. The most common issues for these patients include lower treatment motivation, lack of cooperation and dropping out of therapy. A more severe course of the disorder usually predicts a worse treatment outcome. However, some studies have shown a strong connection between compulsive hoarding and a poor treatment outcome after taking OCD symptom intensity into account. It is explained by poor insight, which is more common among these patients, and the accompanying personality disorders, including schizotypal personality disorder [27]. Because of poor cooperation and weak reaction to the standard psychological treatment used in OCD, CBT modifications are proposed in this case, with the addition of motivational talks, learning skills training for focusing, time management (using a calendar, making task lists and prioritizing them), decision making and problem solving, cognitive flexibility and a longer duration of treatment (26 sessions) [10, 27].

Patients with dominant obsessions and relatively absent compulsions also react worse to ERP. As to the type of obsessions, the sexual or religious obsession types predict a worse response both to ERP and CBT. ERP is most effective for overt compulsions because designing appropriate stimuli exposure programs for them is easier. Patients with dominant obsessions are more often characterized by more severe OCD symptoms, but even after the severity of the disorder is considered, sexual and religious obsessions predict a weaker response to ERP. The reason for the resistance to ERP can be the nature of these obsessions. They are related to the issues of values, to foreseeing catastrophic results of the lack of control over these thoughts and/or to a conviction that having such unacceptable (immoral) thoughts is equivalent to unacceptable (unacceptable, 'sinful') actions. As long as such beliefs and convictions are not processed with cognitive methods, exposure techniques will involve daunting fear and resistance against neutralizing strategies for the sexual or religious obsession, such as searching for reassurance, avoidance and/or mental compulsions [27].

The cleaning OCD subtype may be heterogeneous [66, as cited in: 27]. One type would be a classic contamination type, in which the obsessive convictions are related to harm (e.g., contracting or spreading a disease), and the washing/cleaning compulsions are meant to prevent the harm. This OCD type is a good fit for ERP therapy. The second type is characterized by a discomfort about feeling contaminated, and patients clean or wash excessively to reduce the feeling and not to avoid any particular harm related to contamination. These patients show a strong feeling of disgust [67, as cited in: 27]. In the planning of ERP techniques for patients of the second type, exposure to the feeling of disgust may be necessary. Cognitive intervention aims to re-evaluate the

discomfort related to contamination. Patients with fear of contamination and washing/cleaning compulsions who do not want to undergo ERP or are resistant to it may benefit from danger ideation reduction therapy [68, 69, as cited in: 27]. This type of therapy does not involve any ERP components, but it includes many cognitive procedures and other ones aiming to reduce the expected danger of contamination.

ERP fares relatively well in treating checking compulsions. Apart from modifying and perfecting the ERP model, a further improvement in the efficacy of treating checking compulsions can be achieved, thanks to utilizing cognitive strategies directed at the correction of cognitive disorders. These include increased responsibility for potentially catastrophic outcomes, exaggerated appraisal of harm, intolerance of uncertainty and memory distrust [27].

Patients with symmetry subtype (symmetry obsessions and repeating, ordering and counting compulsions), in which compulsions are driven more by the need for "things to be in the right place" or for things to feel complete, rather than by the need to neutralize the risk of harm, also require a modified psychological treatment [70, as cited in: 27]. Patients with symmetry obsessions and ordering and arranging compulsions seek help less frequently, and they experience their compulsions as more egosyntonic [71, 72, as cited in: 27]. These are related to a higher severity of OCD, earlier onset and more frequent co-occurrence with Tourette disorder and chronic tic disorder. Furthermore, the sensory phenomena (for example, the 'not quite right' feeling and the feeling of 'incompleteness') often present in the symmetry, organizing and arranging OCD subtype may require ERP modification [27].

Another form of psychotherapy showing good results for patients with OCD is acceptance and commitment therapy (ACT). It involves teaching patients to observe their negative thoughts without reacting to them, and prioritizing activities focused on values [73]. It belongs to the promising third wave of cognitive psychotherapy, so-called metacognitive psychotherapy, which puts emphasis on the function of higher cognitive processes, allowing the modification of one's beliefs about the symptoms (e.g., the role and meaning of obsessive thoughts).

For body dysmorphic disorder, a complex treatment (SSRI combined with CBT and ERP) is recommended. CBT strategies include psychoeducation, motivation-improving techniques and cognitive restructuring. Cognitive strategies include the evaluation and questioning of false beliefs about appearance, as well as exposure to stimuli causing anxiety and to the avoided activity. Another technique that can be used is the mirror retraining technique, in which patients practice observing their reflection in the mirror and describing their appearance by using objective and non-judgmental language [74].

Another type of CBT used in treating OCD is habit reversal training. It is more effective than other forms of treatment for trichotillomania [31], skin-picking disorder and also co-occurring tics [75, as cited in: 27]. As trichotillomania and dermatillomania seem to have a different nature from that of other OCRDs, they involve deficits in motor inhibition and impulse control and their symptoms aim at bringing relief rather

than avoiding intrusive thoughts, the psychological treatment of these disorders is based mostly on the concept of habit reversal [76, as cited in: 10]. This type of therapy includes such strategies as awareness training, self-monitoring training, competing response training (the patient learns to respond differently with the same muscle group, such as making a fist instead of skin picking) and stimulus control (patients modify their environment to create barriers blocking the unwanted behavior). For this group of disorders, one may also use ACT, which focuses on reducing the avoided behaviors, on accepting one's feelings, thoughts and impulses, and on concentrating on achieving one's goals and life satisfaction [10].

Regardless of study results on the efficacy of different forms of therapy, in practice, psychotherapy and pharmacotherapy are commonly used together. Combining both methods is not indispensable in mild or even moderate symptom severity, in which cognitive and behavioral psychotherapy (CBT/ERP) alone may be sufficient. Often, the decision to start OCD/OCRD treatment with pharmacotherapy results solely from the unavailability of psychotherapy. For patients with more intensified symptoms, combining CBT/ERP with SSRI is beneficial. In cases in which psychotherapy was not used from the beginning and SSRI therapy did not bring any improvement or brought only partial improvement, CBT/ERP is recommended as a first-choice augmentation strategy [77, as cited in: 12].

4. Psychosurgical treatment

Surgical interventions involve disconnecting the pathways between structures which are crucial in this type of disorder (e.g., the pathway between the orbitofrontal cortex and the anterior cingulate cortex). These surgical procedures include anterior capsulotomy, anterior cingulotomy, subcaudate tractotomy and limbic leucotomy. Surgical interventions are only used on patients with very intensified symptoms who are resistant to pharmacotherapy and psychotherapy [9]; for example, cingulotomy is used on patients with severe symmetry/counting obsessions and compulsions and compulsive hoarding that are resistant to other forms of treatment [78, as cited in: 27].

Deep brain stimulation involves surgical insertion of electrodes into the basal ganglia area. An alternative to these serious methods could be non-surgical brain stimulation through transcranial magnetic stimulation, in which the brain's electrical activity is modified by using external electromagnets over certain areas of the brain. Thus far, research has not confirmed the efficacy of this method for treating OCD [9].

5. Recapitulation

The observed differences in responses to pharmacotherapy depending on the type of OCD within the OCRD group are not clear enough to provide a justification for the use of different methods of pharmacological treatment. In practice, the choice of OCD therapy should not be based solely on the type of obsessions and compulsions but

should also consider other factors, which are often (although not always) related to the response to treatment. These factors include the severity of OCD symptoms, the age of onset, the level of insight and the co-occurrence of schizotypal personality disorder, chronic tic disorder or depression [4]. For psychotherapy, differentiating therapeutic techniques depending on the symptom type seems to be more justified. Particularly for trichotillomania and dermatillomania, the first-choice technique is habit reversal, which stems from the nature of these disorders, as was described earlier. For other disorder types from the group, the first-choice method remains ERP, complemented by continuously improved cognitive techniques.

Further research is needed to improve the effectiveness of OCRD treatment. New medications with working mechanisms that are different from those of the SRI group give a certain hope for improving efficacy, as well as new psychotherapy techniques and new ideas for combining both of these modalities. Let us add that broadening scientific knowledge about the nature of obsessions that are at the base of psychopathological mechanisms and their co-occurrence with other disorders, as well as the methods for their treatment, should be followed by intensive educational activities, which – alongside family intervention – play an important role in OCD therapy. Unfortunately, this topic could not be covered in this article because of space constraints.

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