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REVIEW ARTICLE

Psychopharmacotherapy of Obsessive-Compulsive Symptoms within the Framework of Tourette Syndrome

Aribert Rothenberger[1] and Veit Roessner[2,*]

[1]*Clinic for Child and Adolescent Psychiatry and Psychotherapy, University Medical Center Göttingen, Göttingen, Germany;* [2]*Department of Child and Adolescent Psychiatry and Psychotherapy, TU Dresden, Germany*

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Abstract: While Behavioral Therapy (BT) should be recommended as the first step in the treatment of OCD as well as TS, medication can be added for augmentation and in certain situations (*e.g.* family preference, BT not available or feasible) the priority may even reverse. This narrative review is given on the complexity of drug treatment in patients comorbid with obsessive-compulsive disorder (OCD) and Tourette syndrome (TS) and other tic problems. OCD with TS is a co-occurring combination of the two generally delimitable, but in detail, also overlapping disorders which wax and wane with time but have different courses as well as necessities and options of treatment. Distinct subtypes like "tic-related OCD" are questionable. Obsessive-compulsive symptoms (OCS) and tics are frequently associated (OCS in TS up to 90%, tics in OCD up to 37%). Sensory-motor phenomena like urges and just-right feelings reflect some behavioral overlap. The main additional psychopathologies are attention-deficit hyperactivity disorder (ADHD), mood problems and anxiety. Also, hair pulling disorder and skin picking disorder are related to OCD with TS. Hence, the assessment and drug treatment of its many psychopathological problems need high clinical experience, careful planning, and ongoing evaluation/adaptation. Drugs are able to reduce clinical symptoms but cannot cure the disorders, which should be treated in parallel in their own right; *i.e.* for OCD serotonin reuptake inhibitors (SSRI) and for TS (tics), certain antipsychotics can be successfully prescribed. In cases of OCD with tics, when OCS responds only partially, an augmentation with antipsychotics (recommended: risperidone and aripiprazole) may improve OCS as well as tics. Also, the benzamide sulpiride, an atypical antipsychotics, may be beneficial in treating the combination of OCS, tics and anxious-depressive problems.

Probably, any additional psychopathologies of OCD might attenuate the effectiveness of SSRI on OCS; on the other hand, in cases of OCD with tics, SSRI may reduce not only OCS but also stress sensitivity and emotional problems and thus leading to better selfregulatory abilities, useful to improve tic suppression.

In sum, some clinical guidance can be given, but there remain many uncertainties because of a scarce database for psychopharmacotherapy in OCD with TS.

Keywords: Obsessive-compulsive symptoms, tic disorders, drug treatment, comorbidity, SSRI, neuroleptics, associated psychopathology.

1. INTRODUCTION

Recently, a high-quality primer on Tourette Syndrome (TS) has been published, giving a timely and comprehensive overview related to all relevant aspects of the disorder [1]. This includes the suggestion that primarily Behavior Therapy (BT) should be recommended for the treatment of both OCS/OCD and TS. BT seems to be equally effective for pure as well as tic-related OCD [2-4]. But many patients remain symptomatic after BT intervention. In this situation, medication comes into play for augmentation. Further, drug treatment may be given the priority if BT is not available, not feasible or not preferred by the family. Concerning the practically important relationship between obsessive-compulsive symptoms (OCS) and TS the present review will broaden this issue while starting with the essentials on core aspects of TS before presenting obsessive-compulsive symptoms/ disorder (OCS/OCD) as comorbidities with TS. Several levels of investigation are mentioned (*e.g.* psychopathology, pathophysiology, psychosocial burden) and their specific meanings for psychopharmacological treatment are discussed.

*Address correspondence to this author at the Department of Child and Adolescent Psychiatry and Psychotherapy, TU Dresden, Germany;
E-mail: Veit.Roessner@uniklinikum-dresden.de

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Finally, certain drugs are explored for their use in the treatment of OCS/OCD within the framework of TS.

1.1. Tourette Syndrome

TS is a chronic neurodevelopmental disorder with childhood onset. The core diagnostic features are several motor and one or more vocal tics lasting more than one year. Tics are sudden, abrupt, short, non-rhythmic, repetitive, non-voluntary and serve no recognizable purpose. They wax and wane spontaneously over time and look like fragments of normal movements (*e.g*. eye blinking, head turning). The symptomatology may be increased by stress and emotional excitement but may be attenuated during sleep, relaxation and goal-oriented behavior/concentration. Tics can be voluntarily suppressed for a limited period of time; the sensory-motor phenomena before a tic may be used as a signal for starting suppression. Besides simple motor and vocal tics, more complex motor (*e.g*. hopping) and vocal tics (*e.g*. short syllables, words) and in rare cases coprolalia, copropraxia, echolalia, palilalia can also occur.

Motor tics are usually first manifested around the age of 5 to 7 years, vocal tics from 11 years, and coprolalia from approximately 15 years. At late adolescence, tics decline independently of a possible treatment, probably related to neuronal maturation of inhibitory cerebral mechanisms [5]. Tic disorders are frequently associated with attention-deficit hyperactivity disorder (ADHD; 50-75%) and OCD (30-65%). They may also be accompanied by problems with autistic traits, emotions, sleep, learning, and quite rarely with self-injuries behavior or restless legs syndrome. Psychosocial impairment is primarily related to ADHD and/or OCD than the tics themselves [1, 6, 7].

The therapeutic approach for the tics includes psychoeducation (important: there exists a tendency to spontaneous remission/improvement mainly from the age of 14-16 years on). Further, there is preference of BT with habit reversal training, exposure and response prevention and (with a lower level of evidence) neurofeedback may be recommended. Finally, psychopharmacotherapy with mainly dopamine-modulating drugs like tiapride, sulpiride, aripiprazole, risperidone, ziprasidone, haloperidol and pimozide may be indicated [7].

1.2. Obsessive-compulsive Disorder and Tourette Syndrome

OCS may be present in up to 90% of TS subjects. The rates of OCD in TS subjects vary from 10% to 35%. Otherwise, the rates range from 7% of TS in OCD patients to 53% of tics in OCD patients [2, 3, 8, 9].

1.3. Bridging Phenomenology

There exists some phenomenological overlap between the repetitive premonitory urges and behavior of tics and the obsessions and compulsions of OCD. Around the age of ten years, children with tics are usually aware of some sensory-motor phenomena before the tics; *e.g*. feelings of localized muscle tension or itching, generalized somatic discomfort or an urge to tic "somewhere in the head", which can be withhold for a short amount of time but are relieved only by performing the tic in question. If this urge-related performance of the tic feels "just-right" everything is fine for the moment; if not, the tic has often to be voluntarily repeated until this feeling is succeeded. This kind of sensory-motor phenomena are comparable to the sensations before a sneeze or a hiccup [10, 11].

Similarly, many OCD patients report that certain subjective experiences may precede or accompany their compulsions; *e.g*. the "just-right" phenomenon was registered in 90% of the OCD plus TS group, in 48% of the TS group and in 35% of the OCD group. The presence and severity of sensory-motor phenomena seem to be closely related to the "symmetry/ordering" dimension, frequently described as a component of the "tic-related OCD" phenotype and seem to be often more psychosocially impairing than tics and/or obsessions themselves [8]. The authors summarize as follows: "Sensory phenomena are not restricted to TS patients and can be an important phenotypic variable in the characterization of the "tic-related OCD" subtype and can help to understand the phenomenological continuum between OCD and TS. In addition, they are also more frequently associated with… a family history of tics".

Nevertheless, there exist problems in interpreting certain repetitive behaviors just by observation. For example, repetitive spitting may result from a need to relieve an urge to tic but also to neutralize an obsession of being poisoned by the own saliva. Hence, one needs to interview the patient about his subjective interpretation to clarify the issue.

1.4. Associated Psychopathology

The lifetime prevalence of any psychiatric comorbidity among individuals with TS is about 86%; 58% of this population had two or more psychiatric disorders [12]. The rates of OCD in TS vary from 40-60% and TS in OCD can be seen in about 10%. When subcategorical symptomatology is taken into consideration, percentages are much higher [8]. Further, one should have in mind that some psychopathological symptoms might be influenced by the cultural context. Hence, in the case of TS, empirical data revealed that there may exist "culturally resistant" core features of TS which are related to motor and vocal tics while merely distant TS associated psychopathology like mood problems may be (at least partly) "culturally sensitive" [13].

Since the psychopathological profile of patients with TS and OCD plus TS usually goes beyond the core symptoms, the impact of these associated phenomena needs to be considered for diagnostics and treatment.

Comorbid *compulsions* occur as repetitive behaviors in TS in the same manner as in non-tic OCD, but have to be differentiated from the tic-like compulsions and repetitive complex tics. Tics and tic-like compulsions are usually not preceded by obsessions or anxiety but by sensory-motor phenomena [8]. These difficulties in differential diagnosis of repetitive movements versus complex goal-oriented repetitive behaviors and their borderline forms [14, 15] might also explain the uncertainty in prevalence rates of OCD in TS.

Attention-deficit hyperactivity disorder (ADHD) is with about 50-60% (at least in childhood and adolescence) the

practically most important associated psychopathology in TS, and seems to be the driving force for additional comorbidities like OCS, mood and anxiety problems; *i.e*. one finds more comorbidities in TS with ADHD compared to TS without ADHD. Also, OCS are closely related to ADHD and one should be aware of it during assessment and treatment [6, 16, 17].

Although *anxiety* (36%) and *mood disorders* (30%) are already part of TS without OCD and/or ADHD their rates are increased when TS is comorbid with OCD and/or ADHD. Specifically, high rates of mood disorders among patients with TS may account for OCD, while increased risk of anxiety seems merely related to ADHD [1, 12].

Other associated psychopathologies may include aggression, self-injurious behavior, tantrums, symptoms of autism spectrum, conduct disorder, migraine, and (rarely) suicidality.

All these phenotypes reflect an additive model of the complex psychopathology related to pure TS [1, 6].

1.5. A Special Aspect of OCD in TS

"Trichotillomania/hair pulling disorder (HPD) and excoriation/skin picking disorder (SPD) are childhood-onset, body-focused repetitive behaviors that are thought to share genetic susceptibility and underlying pathophysiology with OCD and TS… 3.8% and 13.0% of TS patients met DSM-5 criteria for HPD and SPD respectively"; higher rates of the latter two were associated with increased tic-severity and co-occurring OCD in TS patients [18]. This study with n=811 TS patients suggests that "HPD may be more closely related to tic disorders (or tic disorders with co-occurring OCD) than to OCD alone"; it allows to assume, "that HPD may be a TS-spectrum disorder" reflecting the direction of TS-psychopathology towards obsessive-compulsive repetitive behavior. This assumption is supported by similar findings of Coffey *et al*. [19] and Rozenman *et al*. [20]. Greenberg *et al*. also elucidated that, in the case of co-occurring OCD and TS, further associated psychopathologies need to be considered [18]. For example, SPD in their TS sample was also related to ADHD and they reported previous studies where rates of both ADHD and SPD were elevated in the OCD with tics group *vs*. the OCD without tics group.

In sum, in patients with HPD and/or SPD one should be aware of both OCD and TS and carefully assess where the focus of psychopathology and psychosocial impairment is located in order to choose the adequate treatment program.

1.6. Course of Co-occurring OCD and TS

TS usually has an onset around the age of 5 to 7 years. Typically, accompanying problems appear at different points of development. For example, separation anxiety may be seen in the first three years of life, ADHD is visible 2-3 years before first tics and full blown OCD may come into play about 5-6 years after the tics or later, while some OCS can be present as early as at 3 to 4 years of age, *i.e*. before first motor tics emerge. Thus, in contrast to TS, OCD can start in different periods of development.Tics improve during adolescence in most of the cases, while the comorbidities like ADHD and OCD continue and may then worsen in more than half of the TS patients.

Recently, in a Danish clinical cohort study, n=227 TS patients (age range at baseline 5-19 years), were followed-up 6 years after diagnosis. They found that tic severity declined yearly. However, impairment of TS patients was not correlated with the tic decline, but probably influenced by associated OCS/OCD and/or ADHD. Also, childhood tic, OCD and ADHD predicted the respective symptomatology only. This supports the view that, at the psychopathological level, all three disorders are separate in parts, in case they may co-occur. Only 23% of TS patients remained with moderate to severe tics, which confirmed the improvement of tics during adolescence. There was a smaller yearly decline in symptoms of both OCD and ADHD. At follow-up, 63% of the TS patients still showed associated psychopathologies [21, 22]. Specifically, OCD may become more severe with increasing age and is more likely to persist than tics [23]. Thus, the dynamics of the concurrent but different course of OCD *vs*. TS implies a differential influence on the variance of associated developmental psychopathology with time. For example, on seven out of eight CBCL (Child Behavior Check List) subscales, the main effects for CTD (Chronic Tic Disorder) differed depending on whether an OCS Score was included as a covariate or not. Hence, the effects of CTD on the subscale "Thought Problems" disappeared while, at the same time, the score was increased by OCS [6]. Finally, OCD patients who first presented with tic disorders later showed higher frequencies with HPD and SPD than those OCD subjects without tics [8]. Thus, the changing psychopathological profile with time demands careful re-evaluations of the first assessment during the course of the disorders accompanied with an adaptation of the treatment.

1.7. Risk Factors and Pathophysiological Model of OCD Plus TS

In their book chapter on "The phenomenology of OCS in TS" Ferrao *et al*. describe in predisposed subjects environmental *risk factors* like emotional stress, exposure to drugs and alcohol/nicotine as well as streptococcal infections that might be associated with OCD and TS. Also, they mention familiality of OCD in TS families [8]. For example, "over 50% of the TS siblings were found to have comorbid OCD and more than 30% of mothers and 10% of fathers also had a diagnosis of OCD", *i.e.* there exists evidence for genetic overlap and transmission with a strong heritability of OCD together with TS, but the genetic background is not yet clarified [1]. Ferrao *et al*. also report evidence underlying a probable *pathophysiological model* of OCD (with mainly serotonergic imbalance referring to SSRI) and TS (with mainly dopaminergic imbalance referring to antipsychotics) and summarize that "the cortico-striatum-thalamo-cortical circuits are involved in tics and in OCS [8]. The different symptom presentation for each patient may be the result of other involved structures connected to the direct and the indirect pathways. The dense dopaminergic and serotoninergic innervation's imbalance, especially in the orbitofrontal cortex, ventromedial caudate, and medial dorsal thalamus, may result in tics or compulsions". While the frontostriatal neuronal circuits are also rich in glutamatergic receptors, which

are involved in the regulation of compulsive behavior, glutamate modulators might also play a role in the treatment of OCS. Specifically, the altered glutamatergic transmission may be related to OCS with tic disorders. But, so far, no studies with glutamatergic agents in OCS/OCD with TS are available [24, 25].

1.8. Psychopharmacotherapy of OCD with/without TS

"In 2006, the National Institute of Clinical and Health Excellence (NICE) guidelines for OCD recommended antipsychotics as a class for SSRI treatment-resistant OCD" [26]. The authors systematically reviewed studies on adults and conducted a meta-analysis "on the clinical effectiveness of atypical antipsychotics augmenting an SSRI" in reducing OCS. They included double-blind randomized controlled trials (RCTs) of atypical antipsychotics against placebo. In the short term, they found small effect-sizes for both aripiprazole and risperidone. It was concluded that both drugs "can be used cautiously at a low dose as an augmentation agent in non-responders to SSRIs and CBT (Cognitive Behavioral Therapy) but should be monitored at 4 weeks to determine efficacy". There was no statement about OCD with tics.

In 2015, an updated meta-analysis of double-blind RCTs (N=14; including N=2 with total n=79 for aripiprazole and N=4 with total n=132 for risperidone) came to a similar conclusion [27]. Thus, for these two drugs, the former positive clinical evidence from case series, open studies and "clinical consecutive patient groups" could be confirmed. Some of these studies reported that in OCD patients with tics, aripiprazole/risperidone augmentation for OCD improved both OCS and tics [28]. Thus, the psychopharmacotherapy of OCD with/without tics needs a two-sided view, *i.e.* from OCD as well as from TS, in order to get a clear picture while addressing the co-occurrence of OCD with TS.

Besides several more general reviews on treatment approaches of tic disorders [29, 30], there exist only a few reviews focusing on the psychopharmacological treatment of TS [7, 17, 31]. Beyond that, only two reviews specialized on the treatment of psychiatric comorbidities in TS and specifically on OCD in TS) [32, 33]. Further, TS-guidelines from Europe, USA, Canada and China are meanwhile available but touch this issue only shortly (see Robertson *et al*. [1]). Hence, this article will refer to this information, giving the essentials related to our topic and provide a comprehensive update.

Before *planning drug treatment* for a patient with OCD plus TS one should be aware that:

1. There is no combination of any comorbidity with TS which represents a valid own categorical entity/subtype; *i.e*. all TS co-existing psychopathology is additive either as a separate disorder like OCD or a dimensional symptom like OCS. That implies to treat in a parallel disorder/symptom-specific manner.
2. The psychopathological profile is usually broader than the combination of the separate core features of TS and OCD; *i.e.* problems of mood, anxiety and ADHD have to be kept in mind as clinically relevant.
3. Similarly, the neurotransmitter imbalances of OCD plus TS seem to include more neurotransmitter systems than the "core imbalances" of each single disorder (TS: dopamine; OCD: serotonin); *i.e*. noradrenergic, glutamatergic, GABAergic, cholinergic and opioidergic systems are also involved. They may be altered by standard drugs used for the improvement of OCD or TS; and drugs with these systems as a primary target might be also helpful in single cases of OCD and/or TS, although not yet approved by RCTs. In the future, the optimal goal would be to match the dimensional psychopathological efficacy profile of a drug (probably related to its receptor/transporter profile) with the psychopathological profile of the patient's problems.
4. Drug treatment of OCD plus TS can only reduce symptoms but not cure the disorders. Nevertheless, there are some hints for a better prognosis in the long term for drug treatment of OCD; *i.e*. after termination of medication, more individuals with OCD than those with TS have a stable and more pronounced reduction of symptoms, when compared to a group that has not been pharmacologically treated.
5. Primary target symptoms for psychopharmacotherapy should be those, which contribute most to psychosocial impairment of the patient.
6. Secondary targets should be selected either to improve compensation and self-regulation (*e.g*. stimulants for attention deficits) and/or to diminish confounders (*e.g*. anxiolytics for anxiety or melatonin for sleep problems).
7. The natural course of OCD and specifically of TS is waxing and waning. Hence, choosing the right point in time either to start/fade out or evaluate/adjust psychopharmacotherapy needs experienced clinicians, in order "to avoid unnecessary or premature therapy on the one hand and allow valid evaluation of the efficiency of intervention on the other" [7].

"Although OCD and TS are closely related, no *clinical trials* have specifically evaluated the treatment of OCD symptoms in TS patients. The main source of information about the treatment of OCD patients with chronic tics or TS is drawn from the small number of clinical trials on the efficacy of anti-OCD drugs that have included patients with tics" [32]. But most of the anti-OCD drug trials excluded patients with tic disorders. Cardona and Rizzo reported the few studies available on SSRI (Selective Serotonin Reuptake Inhibitors) monotherapy in OCD patients with and without tics [32].

Mc Dougle *et al*. studied retrospectively in adults the efficacy of fluvoxamine and found that the improvement scores of the Y-BOCS (Yale-Brown Obsessive-Compulsive Scale; decrease of 17% in OCD with tics *vs*. 32% in OCD without tics) and CGI (Clinical Global Improvement; positive response in 21% of OCD with tics *vs*. 52% of OCD without tics) were in favour of OCD without tics [34]. Husted *et al*. tried to replicate this work also in adults in an 8-week prospective open-label trial with fluoxetine [35]. There was a significant response in the Y-BOCS score for

both groups (29% for OCD with tics *vs*. 34% for OCD without tics, which was not statistically different between groups). But the response rate (*i.e*. 25% decrease of Y-BOCS score) was higher in OCD without tics (71%) compared to OCD with tics (39%). In addition, the OCD with tics group, unexpectedly, showed a decrease of tics with this fluoxetine monotherapy. Since a direct pharmacological effect seems to be non-realistic, an indirect effect *via* a better emotional balance and thus better self-regulatory abilities for tic-control seems to be more plausible.

In children and adolescents, two controlled studies are available. Geller *et al*. reported about a 16-week double-blind, placebo-controlled withdrawal phase of OCD responders on paroxetine [36]. "The mean CY-BOCS total score was reduced from 26 to 13 at the endpoint of the first phase. Almost 71% of patients met the responsiveness criteria". Most interesting is, that OCD patients with comorbid disorders like tic disorders, ADHD and ODD (oppositional defiant disorder) presented with clearly lower response rates (39-56%). Also, the relapse rate at the end of the withdrawal phase was higher in the groups with comorbidities.

The effect of tic comorbidity on OCD treatment was also investigated within the framework of the "Pediatric OCD Treatment Study" POTS [37, 38]. About 15% of the 112 OCD subjects (age range 7-17 years) displayed either TS or a chronic motor tic disorder as comorbidity. The main result was that the combined treatment of CBT plus sertraline was better than sertraline-only and the latter was better than placebo. At the end, CY-BOCS scores did not differ significantly between OCD with tics (16%) and OCD without tics (17%), but the tic disorders by treatment interaction were statistically significant; *i.e*. the sertraline effect was better than the placebo effect, but only in the absence of tics. This supports the view that tics may reduce the impact of SSRI on OCD in cases of OCD with tics.

A more recent evaluation of the POTS data did not refer to the categories of OCD and tic disorders and also not to the new diagnostic categorical subtype for OCD in DSM-5, namely "tic-related OCD", but "advocated for a dimensional approach that includes those who experience significant disorder symptoms but may not meet usual diagnostic criteria" [3]. Such empirical studies would allow to include the whole spectrum of the specific symptom area and thus lead to a better and broader understanding of the practically relevant psychopathological problems. This view is reflected in the fact that about 60% of children with OCD have a lifetime history of tics, but only 15% have a categorical chronic tic disorder including TS. This POTS II evaluation referred to the data of a 12-week randomized controlled clinical trial examining the efficacy of CBT augmentation strategies for youth who were partial responders to an optimal dosage and gave support for traditional CBT augmentation, while an abbreviated version of CBT was not better than medication management with sertraline-only. "Those with tic-related OCD did not differ from those with non-tic-related OCD in terms of age, family history of tics, OCD severity, OCD-related impairment, or comorbidity. Those with tics responded equally in all treatment conditions". These findings contrast to previous research of POTS I [38] where tics moderated medication management of OCD. Conelea *et al*. stated that this "may be attributable to this sample being youth who were already medication partial-responders, or to the more broad definition of tic-related OCD in the current study" [3]. Hence, it still remains to be clarified if and in which way tics may moderate (attenuate) SSRI effects on OCD in the case of OCD with tics. It seems also possible that other clinical parts of the full OCD with tics psychopathological profile might drive these drug treatment effects (*e.g*. somatosensory phenomena, emotional dysregulation).

Given that SSRI treatment for OCD (in the case of OCD with tics) may be less effective than for OCD without Tics, certain *augmentation strategies* would be recommendable for two reasons. First, partial-response of OCS to SSRI might be improved and/or, second, when using antipsychotics to treat the comorbid tics, the disturbing modulatory effect of tics on OCD symptoms may disappear.

The first study with such an approach was conducted in 34 adult OCD patients with and without a co-existing chronic tic disorder [39]. This 4-weeks double-blind treatment with either fluvoxamine + placebo vs. fluvoxamine + haloperidol resulted in a better clinical effect (measured with the Y-BOCS score) for the fluvoxamine + haloperidol group. Also, as to be expected, haloperidol reduced the tics in the OCD with tics group. However, there was only a little augmenting benefit on OCS in treating OCD patients without tics [32]. Further, none of the other four OCD with tics augmentation studies [23] could confirm this statistically, likely due to the small sample size, although a similar tendency could be observed.

Further, there exists some clinical experience with sulpiride (a benzamide and second-generation antipsychotic) that this drug may be beneficial in treating the combination of OCS, tics and anxious-depressive problems. In a double-blind study, it was efficacious in reducing tics, particularly those with comorbid compulsive-anxious symptoms. Its antidepressive efficacy was also good. The risk of side-effects is minimal, at least in lower dosages. Because of the broad and longterm positive clinical experience (*e.g*. successful use in minors over decades), sulpiride is a valuable first-line medication in order to pharmacologically treat the frequent combination of tics with compulsive-anxious symptoms [7].

Finally, a recent clinical uncontrolled open-label study over 4-6 weeks on only 18 adult TS patients with OCD stated that aripiprazole tended not only to reduce tics (which is known) but also might have improved OCD, ADHD, anxiety and depression [40]. However, there are several methodological weaknesses in this report which question the validity of this information.

1.9. Duration of Treatment and Side Effects

The psychopharmacological studies on OCS/OCD with TS available are all short-term, *i.e*. of 4-16 weeks duration, while a clinical chart review of 100 cases with TS treated with aripiprazole [41] gives reports of 1-60 months. According to Roessner and Rothenberger [7] and Gerasch *et al*. [40], treatment with antipsychotics should be started with low dosages, then slowly (within 4-6 weeks) titrated to the individually best TS/OCS improvement based on a dialogical consent of patient and physician. If effective, safe and

well tolerated, the drug treatment should be continued for at least 6-12 months. Thereafter, a clinical reevaluation helps to decide for a further 6 months continuation or for a possible reduction in small steps. If fading out of the drug is not an option, dosage for long-term treatment should be evaluated every six months. Concerning SSRIs in OCS/OCD with TS, clinical experience suggests that these drugs should be used in a comparable manner.

In general, antipsychotics of the first choice to treat tics (tiapride, sulpiride, aripiprazole) are well tolerated. Rarely, drowsiness, sleep disturbances, restlessness and weight gain might occur and can be handled by dose reduction. For SSRIs, clinical experience suggests that, while treating OCS/OCD within the framework of TS, side effects seem not to differ from their use for OCS/OCD without TS.

CONCLUSION

In general, within the last ten years, the knowledge and clinical experience concerning the close relationship between OCD and TS made some progress. But the database on psychopharmacotherapy of OCD within the framework of TS remains scarce. It implies that the combination of OCD with TS should be clinically considered in the following way. Psychopathologically it seems to be a co-occurring combination of two generally delimitable, but in detail also overlapping disorders. Distinctive subtypes of OCD with TS are still questionable. Hence, both parts of the comorbidity should be treated in their own right (*i.e*. SSRI for OCD; antipsychotics for TS). Probably, additional psychopathologies of OCD might attenuate the effectiveness of SSRI on OCS within TS, but in some cases of OCD with tics, SSRI might reduce stress sensitivity, leading to improved self-regulatory abilities and thus to better tic control.

In sum, the available evidence on the issue allows to give some clinical guidance but leaves us still with many uncertainties open for future research.

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