High dose risperidone augmentation in obsessive-compulsive disorder with aggression: a case report.

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**ABSTRACT**

**Introduction:** Obsessive-compulsive disorder (OCD) is a common psychiatric disorder characterised by frequent episodes of repetitive thoughts and actions. Current treatment is based mainly on drugs with serotonergic mechanism of action.

**Objective:** We report case of a patient diagnosed with OCD, who presented with frontal EEG abnormality and exhibited aggressive behavior. Successful treatment with risperidone augmentation was introduced. Previous articles regarding this phenomenon, relationship between OCD and frontal lobe pathology and atypical antipsychotic treatment were reviewed.

**Results and conclusion:** OCD is often associated with symptoms of frontal lobe lesions. Aggression may result from both symptoms of OCD and frontal lesions. High dose risperidone may be effective augmentation treatment in such cases.

**Key words:** obsessive-compulsive disorder, risperidone, aggressive behavior

**Introduction**

Obsessive compulsive disorder (OCD) has an incidence of 1 in 50 adults in the USA [1]. Disorder is typically characterised by anxiety-generating obsessions and compulsions that may follow as repetitive acts to reduce the anxiety. Currently, many pathogenetic hypotheses have been proposed, however they do not necessarily exclude each other.

Various etiological theories has been generated to explain OCD symptomatology. Epidemiological and bacteriological studies speculate that group A streptococcus infection is a risk factor implicated in its pathogenesis [2, 3]. Molecular genetics research groups have utilized receptor molecular biology to provide evidence for causal role of serotonin transporter gene polymorphism [4]. Furthermore, neuroimaging studies have shown various neuranaatomical and functional disturbances that characterize OCD patients [5].

Dysfunction of the frontal lobe has been implicated, especially in the regions of dorsolateral and orbitomedial prefrontal cortex [6–8]. Giving our current understanding of brain function, the dysfunction in these regions is consistent with symptoms that are present in the typical OCD patient. However, these regions have extensive connections to other parts of the brain, such as the limbic system. This may explain the emotional disturbance and aggression in OCD patients [9].

We are reporting a patient who presents obsessions with self-perception, seizure activity in the frontal lobe and aggression, in addition to typical features of OCD. We are also suggesting that is such cases high-dose atypical antipsychotics may be effective treatment.

**Case report**

Sixteen year old male, diagnosed with obsessive compulsive disorder according to Diagnostic and Statisical Manual – IV (DSM-IV) Criteria (Table 1) reported presence of OCD symptoms for two years. He was hospitalized in Child and Adolescent Psychiatry Department of Poznan University of Medical Sciences.

In early 2008, patient admitted having suicidal ideology. However, without any plans to actually commit a suicidal act. Patient also suffered from major depression episode of 3 months duration in 2007. He related this to his obsession of uncleanliness, especially that of his clothes. The patient felt that this significantly impaired his daily activities. During that time, patient reported feeling low in energy; a decreased need for sleep; decrease in appetite and a low self esteem. He wanted to abandon his home thinking it will solve his problems. The patient's depression underwent spontaneous remission. He also reported a history of aggressive behavior in the last five years.

Patient was primarily obsessed with keeping his clothes clean. Other obsessions included checking if the door is locked and setting up the alarm clock. The patient goes to the bathroom 35–40 times per day to check how clean he is, after doing so the patient reduces his anxiety. He was sometimes successful in resisting compulsions, for example, checking the door 2–3 times instead of 10 times.

This patient demonstrated obsession with his body image by feeling the need to regularly exercise to increase his muscle mass, he felt he was not the “right size” for his age, even though he weighs 90kg, with a height of 184cm and a BMI of 26 kg/m²
A. The Person Exhibits Either Obsessions or Compulsions
Obsessions are indicated by the following:
- The person has recurrent and persistent thoughts, impulses, or images that are experienced, at some time during the disturbance, as intrusive and inappropriate and that cause marked anxiety or distress
- The person attempts to ignore or suppress 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 or her own mind (not imposed from without as in thought insertion)
Compulsions are indicated by the following:
- The person has repetitive behaviors (eg, hand washing, ordering, checking) or mental acts (eg, praying, counting, repeating words silently) that the person feels driven to perform in response to an obsession or according to rules that must be applied rigidly
- The behaviors or mental acts are aimed at preventing some dreaded event or situation; however, these behaviors or mental acts either are not connected in a realistic way with what they are designed to neutralize or prevent or are clearly excessive.

B. At some point during the course of the disorder, the person has recognized that the obsessions or compulsions are excessive or unreasonable. (Note: this does not apply to children.)

C. The obsessions or compulsions cause marked distress, are time consuming (take more than 1 hour a day), or significantly interfere with the person’s normal routine, occupational/academic functioning, or usual social activities or relationships.

D. If another axis I disorder is present, the content of the obsessions or compulsions is not restricted to it (e.g., preoccupation with drugs in the presence of a substance abuse disorder).

E. The disturbance is not due to the direct physiologic effects of a substance (e.g., drug abuse, a medication) or a general medical condition.

In addition, the patient suffered from aggressive outbursts, which started after his father’s death in a car accident in 2004. However, the patient related those episodes to his mother’s control of his life. The patient complained that his mother limited his computer use and social gatherings with his friends due to fear of the negative influences on his life. Patient would lock himself in the room for half to one hour and would often hit his head against the wall as a sign of agitation and anger towards his mother.

At school the patient was easily agitated as he felt his classmates were calling him dreadful names. This reduced his concentration at school. This has resulted in him being uncomfortable around class mates and had a negative impact on his social life.

The patient denied any family history of psychiatric illness. No co-morbidity was indicated.

In 2004, an EEG indicated seizure activity in the frontal lobe. An EEG performed in 2009 confirmed previous finding. In October 2008, CT scan of the head was performed showing moderate atrophy in frontal lobe, inappropriate for his age.

Treatment
Patient’s first psychiatric visit was in 2007. He was started on 50mg of sertraline. In 2008, patient’s sertraline dose was increased to 125 mg with minimal improvement. Current hospitalization occurred in May 2009 and he was given 200 mg sertraline and 4 mg risperidone. Patient was able to achieve remission of his obsessions, compulsions and aggression at the current dose of sertraline and risperidone. He was discharged from the hospital in July 2009.

Discussion
Based on previous research, numerous neuroanatomical disturbances have been proposed in OCD. These dysfunctional pathways include circuits connecting frontal cortex to the cingulate gyrus, striatum, globus pallidus, thalamus, and going back to frontal cortex.

The inhibitory effect is lost from the frontal cortex to the thalamus, causing hyperactivity of the thalamus. This hyperactivity leads to symptoms of OCD, which may sometimes include aggression. It was hypothesized that the hyperactivity of the thalamus is due to dysfunction of the caudate nucleus, which inhibits “worry signals” produced by the thalamus, and relayed to the frontal cortex. When the inhibitory effect of the caudate nucleus is lost, a constant cycling of the ‘worry signals’ of the thalamus produces the symptoms typical of OCD. Other studies have indicated that increased activity of the subthalamic nucleus results in decrease in symptoms of severe OCD. It is possible that other brain regions and circuits may be involved in OCD pathogenesis. This may explain the diversity of symptoms seen in OCD and the presence of seizure activity in the frontal lobe.

Previous studies showed efficacy of atypical antipsychotics as augmentation treatment in treatment resistant OCD. We propose that in OCD patients with frontal lobe abnormalities and aggression high dose of risperidone may produce quick and durable remission of symptoms.
To conclude, we have presented current understanding regarding the pathogenesis of OCD and its link to changes in the frontal lobe. We presented a case study of a patient suffering from OCD, with aggression, obsessions with self-image and abnormal EEG in the frontal lobe. Based on the patients’ history, CT scan and EEG we proposed the involvement of frontal lobe in OCD pathogenesis. However, further studies are necessary to account for frontal abnormalities and its relation to OCD symptoms.

We also suggest that atypical antipsychotics such as risperidone at high dose, can be used as augmentation therapy to selective serotonin reuptake inhibitors in refractory cases of OCD with aggression.

References

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