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A long-term therapy with a gonadotropin-releasing hormone ananalognamely triptorelin: An evaluation injectable testosterone injection's effectiveness in OCD patients

[1]Babar Ali Raza, [2]Muhammad Zohaib, [3]Khuram Rashid, [4]Marwa Aslam, [5]Mobeen Ali, [6]Umar Khan

[1]UHS, Lahore
[2]Chandka teaching hospital Larkana
[3]Chandka teaching hospital Larkana
[4]Mayo Hospital Lahore
[5]PIMS
[6]PIMS

ABSTRACT:
OBJECTIVE: Based on the results of previous studies, we predicted that long-term therapy with a gonadotropin-releasing hormone (GnRH) ananalognamely triptorelin, may effectively cure obsessive-compulsive disorder (OCD). The aim of this study was to evaluate injectable testosterone injection's effectiveness in OCD patients. Analog triptorelin is one of the most effective injectable treatments for reproductive problems, particularly metastatic castration-resistant prostate.
METHODS: The participants in this randomized single-blind clinical investigation were 30 OCD patients with Yale-Brown scores higher than 17 who had completed 8 weeks of treatment. One set of people got triptorelin, while the other got a placebo. The participants were split into two groups. Three times each month for at least 8 weeks, the participants in the intervention group got triptorelin plus SSRIs like Prozac together with triptorelin. The control group's participants also received three injections of filtered water as a placebo in addition to their usual medicine. The outcomes of the Yale-Brown OCD Scale (Y-BOCS) were evaluated at baseline, 4, 8, and 20 weeks after the end of the treatment.
RESULTS: Before the intervention, the control and intervention groups' respective mean Y-BOCS scores were 30.5 67.6 and 30.5 67.6, respectively, indicating no discernible change between the two groups (P = 0.0.8). The Y-BOCS scores of the two groups differed statistically significantly at 4, 8, and 20 weeks after the intervention (P = 0.01, P = 0.005, and P = 0.005, accordingly). Regarding the medication's adverse effects, 6.7% (n = 1) of the study participants had headaches, while 66.7% (n = 10) of the participants in the intervention group had a late period. The results showed that the side effects between the two groups differed significantly (P 0.005).
CONCLUSIONS: Triptorelin lessened OCD symptoms, according to the study's findings. In our investigation, the efficacy of triptorelin in treating OCD client symptomatology was proven. Future studies are advised in order to clarify this finding, however, given the paucity of research in this area.
KEYWORDS: Triptorelin, Treatment, OCD.

INTRODUCTION:

The DSM-5 classifies OCD as the fourth most prevalent anxiety disorder. As a neuropsychiatric illness, obsessive-compulsive disorder (OCD) is defined by a string of obsessive thoughts and compulsive behaviors that are often derived from intense anxiety (1, 2). Recent neurological discoveries led to the separation of OCD from the category of anxiety disorders in the Diagnosis and Statistical Manual of Mental Conditions (DSM-5most)'s recent revision. In this sense, obsessive-compulsive and associated disorders are a separate classification for OCD (3). The estimated 2%–3% overall incidence of this illness

is global (1). OCD often develops in men throughout infancy and adolescence, whereas in women it doesn't till beyond the age of 20. (4, 5). According to neurobiological studies, the anterior cingulate cortex (ACC), corticosteroid networks, lateral prefrontal cortex, and amygdala-cortical connections in the brain are likely to play a part in OCD. According to neuroimaging research, OCD is accompanied by task-related anomalies in the thalamo-corticostriatal circuits (7). OCD may also be brought on by a variety of environmental variables, including genetics. Because of this, the illness is linked to other conditions including bipolar disorder, drug addiction, drug addiction, and anxiety. Self-harm, unemployment, committing crimes, and other skin conditions are some of the additional issues linked to OCD (8).

The main strategy for treating OCD is thought to be drug therapy. Due to their excellent effectiveness and low risk of side effects, selective serotonin reuptake inhibitors (SSRIs) are the preferred therapy for this condition (11). One of the best treatments for OCD, depression, and anxiety symptoms is fluvoxamine (9). As other effective pharmacological treatments for OCD, amitriptyline (10), imipramine (11), Lexapro, and Zoloft (12) are also available. Only 50% of OCD clients respond well to these therapies, however. The usage of these medications may result in various side effects, including nausea, indigestion, constipation, diarrhea, and serotonin syndrome or serotonin poisoning. Finding novel methods to treat this condition is crucial due to the difficulty of using conventional treatment (unresponsiveness and dangerous consequences) (13, 14).

According to the findings of research done on hypersexual clients, obsessive-compulsive symptoms decreased after using antiandrogenic medications (15). Gonadotropin-releasing hormones (GnRH) were thus assumed to have a role in the pathophysiology of obsessive-compulsive disorder. A few OCD patients have shown signs of benefit with antiandrogenic medications such as micronized progesterone ethanol, resultant effect, and triptorelin (16). In research by Erikson et al., it was noted that a composition including at least one chemical from the category of GnRH analogs was used to create a medication for the treatment of OCD (17). Antiandrogenic medications were shown to be beneficial in the treatment of OCD in a different Eriksson investigation (18). One of the efficient agonists for the treatment of reproductive problems, notably prostate cancer, is analog triptorelin. The addition of glycine to the analog's place of D-tryptophan increases the structure's stability and the capacity to bind to the GnRH receptor. Additionally, it inhibits endopeptidases from metabolizing triptorelin (19).Previous research on triptorelin's efficacy in treating OCD is very few and often plagued by serious methodological issues. In this research, it was expected that long-term treatment of a GnRH analog, namely triptorelin, may successfully cure OCD. The current research was the first effort to look at how triptorelin could affect OCD therapy in Pakistan. This study's objective was to assess how well triptorelin injections worked to treat OCD.

METHODS:

The criteria for admission included: a range of 18 to 64 years old. Sufficient absorption of benzodiazepines, antipsychotics, or specific dopamine uptake inhibitors without affecting the number of gonadal steroid hormones. 30 patients who were sent to the Mayo Hospital Lahore in 2022 and a control group were the subjects of this randomized single-blind clinical experiment. Eight weeks following therapy, the Yale-Brown OCD scale (Y-BOCS) score was greater than 17. The exclusion criteria, on the other hand, included the existence of other concurrent mental problems. the presence of medical conditions. misuse of drugs besides cigarettes. use of other drugs, except one SSRI-sensitive response or other unpleasant side effects brought on by using triptorelin. pregnancy and breastfeeding any conditions that might make triptorelin contraindicated, such as bone problems.According to a psychiatrist's interview and the DSM-5, all clients were given an OCD diagnosis:

A. Obsessions, compulsive behaviors, or both

B. The compulsive behaviors or obsessions are unpleasant in a clinically meaningful manner, take up a lot of time (for instance, more than an hour a day), seriously impede occupational, social, or other critical areas of daily functioning, or are both.
C. The clinical features of a medication like an abused drug or prescription) or another medical condition cannot be used to explain the symptoms of obsessive-compulsive disorder.
D. A diagnosis of a different psychiatric condition cannot adequately explain the problem.
After that, Participants were randomly split into two groups, one receiving the intervention and the other receiving control. Triptorelin injections were given three times per month in addition to SSRIs to the intervention group.
For each patient in the intervention group, one SSRI was given.
Psychiatrists administered the drugs, determined their dosage, and adjusted their titration. Clients who had problems with triptorelin or other medications were deemed to be non-responsive to therapy.
The clients were informed of the potential side effects of this drug regimen prior to the study, and they were taught the necessary precautions to take in order to manage these side effects. decreased libido, all participants were assessed for the potential side effects of triptorelin, including hot flashes, sexual impairment, diarrhea, vomiting, insomnia, nausea, weakness, leg swelling, headache, backache, and orgasm issues. If serious side effects developed, participants were removed from the study to receive the appropriate treatments (Figure 1).
A qualified psychologist tested the participants to ascertain the results of OCD. The kinds of prescription medication were concealed from both the clients and the evaluators.
At baseline, 4, 8, and 20 weeks just after completion of the treatment, the Y-BOCS was conducted. During the study, the client's status was determined using the Y-BOCS. The intensity, as well as the category of a syndrome characterized by OCD clients, were evaluated using this rating scale during a semi-structured interview. Contrary to other questionnaires, the Y-BOCS has a high specificity to medicinal variations and is frequently utilized to assess the efficacy of OCD medication and psychological therapies (20, 21). The scale has ten elements with scores ranging from 0 to 40. A change of 25% in the scale score was caused by the clinical response. In our sample, the Y-BOCS score was more than 17.
Data were input into the SPSS program and analyses included repeated measure ANOVA, independent t-test, and Chi-square test. A P-value of 0.05 or less was regarded as statistically significant.

RESULTS:
No discernible difference in ages between the two groups was found (p-value = 0.76). Tables 1 and 2 illustrate, respectively, the analysis of the clinical and demographic data between the two research groups. The average age of the customers in the control and intervention groups, according to the study's findings, was 34.36.7 and 29.873.1 years, respectively. According to the statistics, there was no appreciable difference between the two groups' disease markers (p-value = 0.85). The severity of the sickness did not vary significantly between the two groups (p-value = 0.59), either. Additionally, there was no discernible difference in this respect when comparing the distribution of medications between both two groups (p-value = 0.75).
Table 1: The analysis of demographic data between control and intervention groups

Variables		**Control Group**	**Intervention Group**	**Prob value**
		Number (%)	**Number (%)**	
Gender	Male	3(20)	5(33.3)	0.41
	Female	12(80)	10(66.7)	
Marital Status	Single	5(3.33)	8(53.3)	0.27
	Married	10(66.7)	7(46.7)	

Family History	Yes	6(40)	6(40)	1
	No	9(60)	9(60)	
Admission	Yes	4(26.7)	3(20)	0.67
	No	11(73.3)	12(80)	
	Primary	3(20)	0(0)	
Education level	Under High school	3(20)	4(26.7)	0.34
	High school	5(40)	5(40)	
	Academic	4(26.7)	6(33.3)	

Before the intervention, the mean Y-BOCS scores in the control and intervention groups were 30.513.7 and 30.567.6, respectively. As a result, during the preintervention stage, there was no discernible difference between the two groups' Y-BOCS scores (P = 0.0.8). Four, eight, and twenty weeks following the intervention, the control group's mean Y-BOCS scores were 29.533.6, 29.76.02, and 29.74.7, respectively. In contrast, these scores were predicted for the intervention group to be 24.413.6, 2421.11, and 20.633.2 at the aforementioned phases, respectively. After 4 (p-value = 0.01), 8 (p-value = 0.005), and 20 (p-value = 0.005) treatment weeks, there was a substantial difference between the two groups postintervention Y-BOCS scores.

Table 2: Disease Symptom Comparison Between both the Intervention Group and Control Group

Variables		**Control Group**	**Intervention Group**	**P-value**
		Number (%)	**Number (%)**	
	Washing	5(33.3)	2(13.3)	
	Checking	3(20)	4(26.7)	
Illness Symptoms	Obsession	1(6.7)	2(13.3)	0.85
	Washing and thought	3(20)	3(20)	
	Washing and checking	2(13.3)	3(20)	
		1(6.7)	1(6.7)	
Illness Level	SSRI	8(53)	6(40)	0.69
	Severe	10(6.67)	11(73.3)	
	Mild	5(33.3)	4(26.7)	
Distribution of Medicine	SSRI+TCA	1(6.7)	1(6.7)	0.75
	SSRI+ap	6(40)	8(53)	

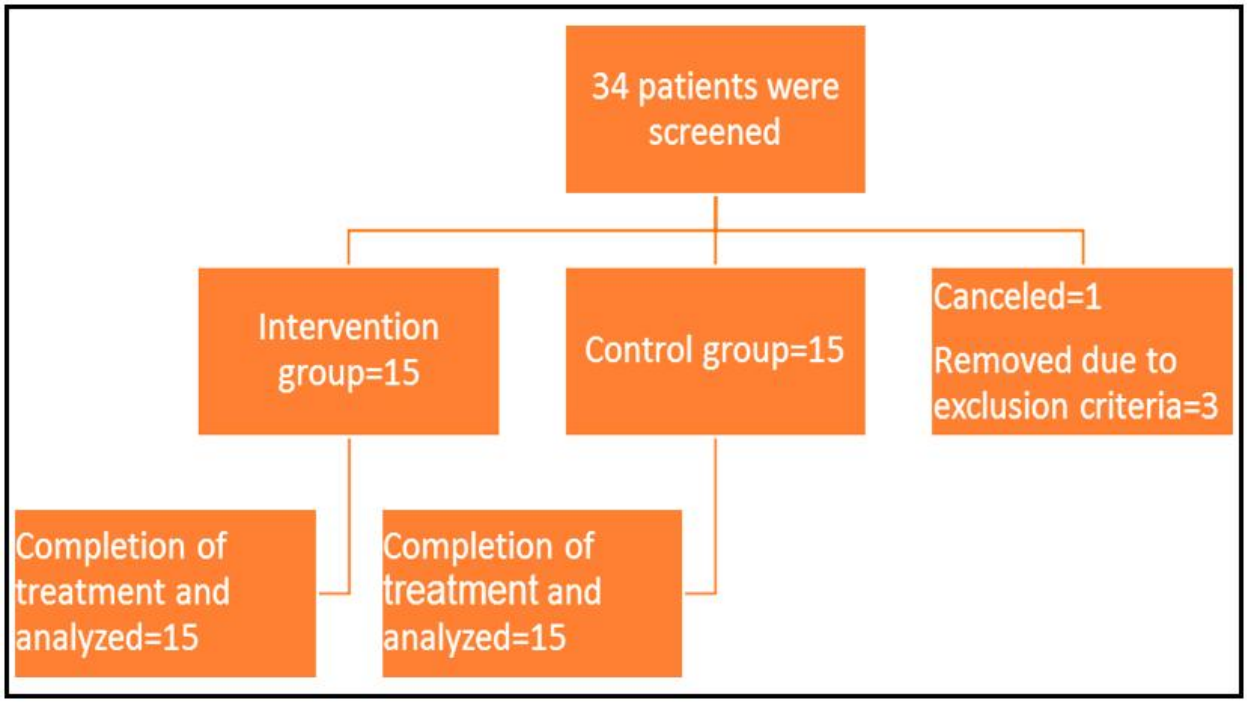

Figure 1: Patients Inclusion Diagram for Obsessive-Compulsive Disorder

In the intervention group, the comparison of the Y-BOCS scores acquired before the intervention with those calculated after the intervention revealed a significant change four weeks after the treatment (p-value = 0.02) based on the findings of the ANOVA. Eight and twenty weeks following the intervention, there was no discernible change in this group (p-value = 0.37 and 0.36, respectively). When Y-BOCS scores were compared before and after the intervention, it was found that there was a considerable difference in the scores four (P 0.005), eight (P 0.005), and twenty (P 0.005) weeks later. Headache and missed menstruation were two of the drug's negative effects that were reported in 1 (6.7%) patient. Furthermore, 66.7% (n = 10) of the intervention group experienced a late period. As a consequence, the findings showed a significant difference in side effects between the two groups (p-value = 0.005).

DISCUSSIONS:

Studies have shown that antiandrogenic pharmaceuticals are useful against OCD. The most widely utilized of these drugs are long-acting GnRH analogs. The goal of this study was to provide further information about the potential use of such potent antiandrogenic drugs for the treatment of OCD. According to the findings of our investigation, both groups' Yell Brown scores dropped following the intervention. However, compared to the control group, triptorelin medication was more beneficial for OCD patients. The majority of customers (66.7%) in the intervention group reported having late menstruation. Triptorelin injection's efficacy for OCD patients were assessed in this randomized, single-blind clinical trial investigation. Our findings indicated that triptorelin reduced OCD symptoms, confirming its efficacy in treating OCD symptoms. Erikson et al. created the first OCD medication using a formulation including at least one chemical from the GnRH-analogs group (17). Eriksson examined the therapeutic advantages of the long-acting GnRH analogue triptorelin on the treatment of OCD over a 48-week period in a separate experiment. Five out of six participants in the aforementioned study had a significant enhancement on the visual analogue scale, which was used to determine the extent of OCD signs on a regular basis. The aforementioned studies showed that antiandrogenic medications were effective in treating OCD (18). This result was reinforced by our research, which evaluated the

effectiveness of an antiandrogenic drug in the prevention of OCD in a one-way blind medical study using Y-BOCS.

There isn't much research that supports the use of antiandrogenic medications such as triptorelin (18) and flutamide (15) in treating OCD patients. These research findings concur with what we discovered. However, not enough research has examined the impact of combining triptorelin with conventional OCD treatment methods. SSRIs are the drug of choice for OCD treatments; however, they don't always work to reduce the symptoms (22). As a result, the efficacy of these drugs is always under question. Another research on hypersexual clients found that the use of antiandrogenic medications significantly reduced the symptoms of obsessive-compulsive disorder (15), supporting the involvement of GnRH in the pathophysiology of the disorder. The efficacy of GnRH in four people with OCD was studied by Peterson et al. The findings showed a connection between variations in GnRH and the start or worsening of OCD (23). In a separate experiment, flutamide (250-750 mg/dL) was administered to eight OCD patients for eight weeks. The results were evaluated by Y-BOCS for indications of compulsive disorder. The fact that they experienced no reduction in OCD symptoms is indicative of how GnRH impacts the disorders' dampening.

According to different research that examined the impact of antiandrogenic agonists on OCD, some patients had substantial improvements with the treatment of lengthy GnRH, such as triptorelin. The duration between the start of the therapy and its conclusion was extensive (16). The effectiveness of cyproterone plus flutamide in treating OCD symptoms points to the drug's antiandrogenic properties (24). Some studies claim that GnRH has the ability to influence dopaminergic and serotonergic function (25, 26). Due to the efficiency of certain medicines' serotonergic and antidopaminergic activities, this raises the possibility that this hormone has a role in addictive behaviors like alcoholism. These results provide credence to the idea that triptorelin, a gonadotropin-releasing hormone agonist, may be used to treat OCD patients. Additionally, additional research has shown that triptorelin has a role in paraphilias (disorders of sexual desire) and mentally ill sex offenders, demonstrating the importance of GnRH in causing involuntary actions.

CONCLUSIONS:

Triptorelin, therefore002C reduced OCD symptoms, and its efficacy in treating OCD symptoms was established. According to other findings, both groups' Yell Brown scores dropped following the intervention. However, compared to the control group, triptorelin medication was more beneficial for OCD patients. Future research is advised to clarify this finding, however, since there have been relatively few studies that evaluated the use of antiandrogenic medications, such as triptorelin, in the treatment of OCD patients. The efficacy of triptorelin injection in OCD patients was proven by this randomized single-blind clinical trial research.

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