Protective Effect of Fluvoxamine for COVID-19 in Obsessive-Compulsive Disorder: A Real-World Case-Control Study

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Fluvoxamine is indicated for the treatment of obsessive-compulsive disorder (OCD), an incapacitating disorder with an estimated lifetime prevalence of 2.3% in children, adolescents, and adults.[1,2] Recent research postulates that fluvoxamine prevents clinical deterioration in patients with preexisting coronavirus disease 2019 (COVID-19) illness by stimulation of the σ-1 receptor, a cytokine production regulator involved in neuroinflammation modulation.[3] Data from meta-analyses further support that fluvoxamine reduces the risk of hospitalization in patients diagnosed with COVID-19.[4] In the United States, the National Institutes of Health (NIH) presented COVID-19 treatment guidelines, which do not recommend for or against fluvoxamine in patients with COVID-19.[5] Presently, there are no studies on fluvoxamine as a protective psychopharmacologic agent against COVID-19 illness in patients with preexisting OCD. This real-world retrospective case-control cohort study aims to examine the protective effect of fluvoxamine for COVID-19 in patients treated for OCD compared to patients not treated with fluvoxamine.

METHODS

The de-identified data used for this study were collected on June 9, 2022 from the TriNetX COVID-19 Research Network, which provided access to electronic medical records from approximately 94 million patients from 49 health care organizations across 11 countries, including diagnoses and medications.[6] The study used only de-identified patient records and did not use, collect, or transmit any identifiable data; hence, it was exempted from the institutional review board process.

The control group, OCD without fluvoxamine (n = 77,511) was propensity matched 1:1 to the case group, OCD with fluvoxamine (n = 4,558) from the onset of the COVID-19 pandemic on March 11, 2020. Propensity matching balanced the cohorts to n = 4,558 for potential confounders based on race, age, ethnicity, sex, mental health, behavioral and neurodevelopmental disorders, basal metabolic index, factors influencing health status and contact with health services, diseases of the nervous system, and diseases of the respiratory system. Outcomes include COVID-19 diagnosis based on *International Classification of Diseases, 10th Revision* criteria. The odds ratio for acquiring COVID-19 between the cohorts was calculated with confidence intervals

Table 1. Baseline Characteristics of Patients With Obsessive-Compulsive Disorder (OCD) Taking or Not Taking Fluvoxamine

Characteristic	OCD Taking Fluvoxamine (n = 77,511)	OCD Not Taking Fluvoxamine (n = 4,558)	*P* Value
Propensity match 1:1, n	4,558	4,558	
Age, mean, y	34.3	35.9	<.0001
Sex, %			
Male	40	46	<.0001
Female	60	54	<.0001
Other	0	0	.1400
Demographics, %			
Not Hispanic	75	75	.9903
Unknown ethnicity	18	20	.0054
Hispanic	7	5	<.0001
Race, %			
White	78	83	<.0001
Black	6	4	<.0001
Asian	2	2	.2787
Native American	1	0	.0010
Unknown race	13	11	<.0001
Native Hawaiian/other Pacific Islander	0	0	.0377
Comorbid conditions, %			
Generalized anxiety disorder	26	36	<.0001
Panic disorder	11	14	<.0001
Depressive episode	41	46	<.0001
Bipolar disorder	11	13	.0020
Autistic spectrum disorder	11	7	<.0001
Schizophrenia	3	4	.0085
Other antidepressants, %			
Sertraline	22	25	<.0001
Fluoxetine	19	24	<.0001
Bupropion	12	17	<.0001
Escitalopram	14	17	<.0001
Duloxetine	7	8	.0022
Venlafaxine	7	10	<.0001
Citalopram	7	9	<.0001
Paroxetine	4	7	<.0001
Desvenlafaxine	1	3	<.0001
Vortioxetine	1	2	<.0001
Vilazodone	1	2	<.0001

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to determine the odds of exposure between the case and control groups.

RESULTS

Matched participants included patients aged 6–84 years with OCD who were taking or not taking fluvoxamine. Table 1 provides the baseline characteristics. The calculated odds ratio was 0.72 (95% CI, 0.63–0.81) and statistically significant.

DISCUSSION

Fluvoxamine could slightly protect against COVID-19 illness in patients with preexisting OCD. This study is limited by ascertainment bias from real-world diagnostic data. Moreover, the patients in the control group were on other psychotropics throughout their care, including selective serotonin reuptake inhibitors and selective serotonin-norepinephrine reuptake inhibitors, which could have provided some anti-inflammatory protection.[7] Hence, further studies are warranted to evaluate fluvoxamine's protective and antiviral properties.

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