



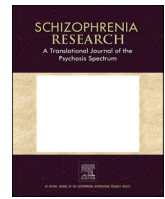
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Letter to the Editor



Incidence and outcome of COVID-19 in patients with schizophrenia: A Study from India

Data emerging from various parts of the globe suggest that compared to controls, patients with mental illnesses develop a more severe infection, are more likely to be hospitalized and are at a higher risk of mortality (Fond et al., 2021; Ji et al., 2020; Nemani et al., 2021; Tzur Bitan et al., 2021; Vai et al., 2021). Further, the data suggest that patients with schizophrenia are less likely to be admitted to the intensive care unit and this is attributed to the discrimination against the patients with schizophrenia (Fond et al., 2021). In terms of the type of antipsychotics available data suggests that, compared to patients on other antipsychotics, those on clozapine have a higher risk of developing COVID-19 infection (Govind et al., 2020). In terms of the risk of COVID-19 infection, data is conflicting with some of the authors suggesting a lower incidence of COVID-19 infection in patients with schizophrenia (Tzur Bitan et al., 2021), whereas others suggest a higher rate of COVID-19 infection (Wang et al., 2021). A recent systematic review which included data on risk of COVID-19-related mortality, hospitalization and intensive care unit admission rates, from different parts of the world suggests lack of data from India (Vai et al., 2021). In this background, this study aimed to evaluate the incidence of COVID-19, the need for hospitalization due to COVID-19 infection, and mortality due to COVID-19 in patients with schizophrenia. The additional aim was to understand the extent of the vaccination against COVID-19 infection among patients with schizophrenia and the incidence of COVID-19 infection in their families.

This study was conducted in a tertiary care teaching hospital in north India. The study was approved by the Institute Ethics Committee and the participants were enrolled by obtaining verbal informed consent.

At our center, prior to the onset of the pandemic, out of all the patients with schizophrenia, following up at our center, we had a list of 594 patients with a diagnosis of schizophrenia, whose contact details were available with us. A majority of these patients were on clozapine ($n = 356$) at last follow-up.

For this study, we tried to contact all these patients in the last week of June 2021 to evaluate the incidence of COVID-19 infection, the severity of COVID-19 infection, the need for hospitalization, and the outcome of COVID-19 infection in the form of mortality. During the telephonic survey, initially, the patient/caregivers were explained about the purpose of the study, their queries were addressed and verbal informed consent was obtained. The collected data was analyzed in the form of frequency, percentages, mean and standard deviation. Comparisons were made by using the Chi-square test and t -test.

Out of the 594 patients, 567 (95.45%) patients could be contacted, of whom 32 patients had developed COVID-19. Among those who developed COVID-19 infection, 23 were on clozapine alone or clozapine being one of the antipsychotic medication and 9 were on non-clozapine antipsychotics. Of those on clozapine, 12 patients developed COVID-19 infection during the first wave of COVID-19, i.e., prior to April 2021,

and remaining developed COVID-19 infection during the second wave. In the non-clozapine group, 5 developed an infection during the first wave and 4 developed the infection during the second wave.

When those who developed COVID-19 infection and those who did not develop COVID-19 infection were compared, those who developed the infection were more educated, from the urban locality, had comorbid hypertension, were on antihypertensive medication and a higher proportion of them had a family member positive for COVID-19 infection (Table 1). When the same comparisons were made for patients receiving clozapine, significant differences between those who developed and those who did not develop the COVID-19 infection were seen on the same variables as seen in the whole sample, except lack of a significant difference for locality. Whereas in the non-clozapine group, when those who developed and those who did not develop COVID-19 infection were compared, significant differences were seen only for those having a family member with COVID-19 infection, which was significantly higher among those who developed COVID-19 infection.

In terms of severity of the COVID-19 infection, 6 patients were completely asymptomatic and were detected to have infection during the routine testing for getting admitted to the psychiatry ward or receiving electroconvulsive therapy. Except for one patient, in all other patients, the COVID-19 infection was not-severe (i.e., they did not require oxygen support and the oxygen saturation did not fall below 90%), and admission was not required for the COVID-19 infection. When the sequence of infection in patients and the family members was evaluated, in 18 patients, the family members were infected before the patient, and in 8 patients, the patient was detected to be COVID-19 positive before the family member. For 3 cases, both the patient and the family members were detected to be COVID-19 positive at the same time, and in another 3 cases, only patient was infected.

When the incidence of COVID-19 infection in the family members only (but not in the patient was evaluated), 22 family members were detected to be positive for COVID-19, but the patient never developed COVID-19 infection, despite coming in contact with the family members.

Except for one patient on clozapine, whose dosage was reduced due to drug toxicity symptoms, rest of the patients continued psychotropics at prescribed dosage during the acute phase of infection.

In the whole sample, 2 patients died during the period of March 2020 to June 2021. The deaths were noted in patients who did not develop COVID-19 infection and both these patients were elderly (age > 60 years), and the cause of death was not related to any kind of infection. Based on the information provided by the family members, the cause of mortality was attributed to cardiac events in both the patients.

The present study suggests that the incidence of COVID-19 infection in patients with schizophrenia is 5.6%, with no significant difference in the incidence between those receiving clozapine and those receiving

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