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***Original research article***

# TO ASSESS THE INCIDENCE AND SEVERITY OF COVID-19 INFECTION IN PATIENTS ALREADY ON HEPATITIS C TREATMENT

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**Abstract:** *The COVID-19 pandemic has caused a significant impact worldwide, affecting almost every continent and every nation and causing economic challenges. Even patients who were undergoing antiviral therapy for chronic hepatitis were not spared from the deadly virus. The objective of this observational cross-sectional study was to evaluate the incidence of COVID-19 in patients already undergoing HCV treatment and to assess the severity and recovery of the disease in these patients. The study was conducted in the Department of Medicine and Gastroenterology at Fatima Memorial Hospital in Lahore and was approved by the ethical committee. The study lasted six months, and the sampling technique used was continuous non-probability sampling. The sample size was 100. The results showed that Sofosbuvir and Velpatasvir were prescribed to 91.4% of subjects, while 8.6% were taking triple therapy, including Ribavirin, Sofosbuvir, and Velpatasvir. The antiviral therapy (AVT) course lasted for three months for 95% of participants, while 5% took AVT for six months. Only 7.4% of the participants underwent COVID-19 testing; of those, 3.7% had positive results. 14.8% of participants had received the COVID-19 vaccine, and 4.9% had been in contact with someone who had tested positive for COVID-19. During the AVT period, 11.1% of participants had a history of fever, 80% had symptoms lasting for less than one week, and 20% had symptoms. These findings suggest that antiviral treatment may have a protective and preventive role in COVID-19 infection. However, further studies with a larger population will be required to strengthen these observations.*

**Keywords:** COVID-19, Hepatitis C, Sofosbuvir

## Introduction

Severe acute respiratory syndrome-Corona virus-2 (SARS-CoV-2), the virus which has resulted in the global COVID-19 pandemic, destroying and affecting almost every continent and nation badly (Zhu et al., 2020). COVID-19 and hepatitis C virus (HCV) Both share the same family of ribonucleic acid (RNA) viruses (Dustin et al., 2016; Zumla et al., 2016). Many drugs have been experienced to hamper the pivotal ladder of the viruses' cycle, like viral replication (Zumla et al., 2016).

Elfiky et al. mentioned that Sofosbuvir, Ribavirin, and Remdesivir may be drugs that can have helpful activity against the COVID-19 virus (Elfiky, 2020). A study conducted by Jácome et al. concluded that Sofosbuvir can serve as an effective drug against COVID-19 (Jácome et al., 2020). Buonaguro and colleagues concluded that Sofosbuvir could emerge as a novel drug for COVID-19 disease because of its peculiar action against viruses (Buonaguro et al., 2020).

Sadeghi et al. registered a trial about the effectiveness of Sofosbuvir (SOF) and Daclatasvir (DCV) and revealed that both these drugs are effective against COVID-19 disease in mild to moderate disease (Sadeghi et al., 2020).

Considering the effects of Antiviral treatment on COVID-19, we demonstrated that patients on treatment for HCV either did not develop symptoms of COVID-19 or had mild symptoms and an early recovery without developing any complications. Patients with CLD CTP A or B who were on AVT, even though being immunocompromised were still protected from COVID-19 infection.

## Methodology

A cross-sectional observational study was conducted on 100 patients who tested positive for Hepatitis C virus (HCV) and were undergoing antiviral therapy at Fatima Memorial Hospital in Lahore. The study aimed to observe the incidence of COVID-19 among these patients despite their exposure to the virus. The severity of symptoms experienced by these patients was assessed through a formatted questionnaire and laboratory parameters. The study's results were analyzed using statistical methods in SPSS version 24.0.

The study had specific inclusion and exclusion criteria. The inclusion criteria were limited to HCV-positive patients who were taking Sofosbuvir and Velpatasvir and had either contracted COVID-19 or had come into contact with someone who had been infected. On the other hand, HCV-positive patients undergoing any further treatments were excluded from the study.

The study was conducted for six months after obtaining approval from the ethical committee. The sampling technique employed was continuous non-probability sampling. The study aimed to observe the course of events

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in HCV-positive patients who had contracted COVID-19 or had come into contact with someone who had been infected with COVID-19 while taking antiviral treatment, Sofosbuvir and Velpatasvir.

**Results**

The patients we enrolled were 54% male and 43% female. Their age ranges from 30 to 74 years. 32.1% of patients were started on AVT between March 2020 to December 2020, and 67.9% were created on AVT between January 2021 to July 2021.

Sofosbuvir and Velpatasvir were prescribed to 91.4% of subjects, whereas 8.6% of subjects were taking triple therapy, including Ribavirin, and Sofosbuvir and Velpatasvir. A 3 months course of AVT was given to 95% of people, whereas 5% of participants took AVT for six months. Only 7.4% underwent COVID testing, of which 3.7% had positive COVID test. 14.8% had Covid-19 vaccination. 4.9% had positive contact with COVID patients. 11.1% had a history of fever during the AVT period (Figure). 80% had these symptoms lasting for less than one week, while among (20%) these symptoms lasted for more than one week.

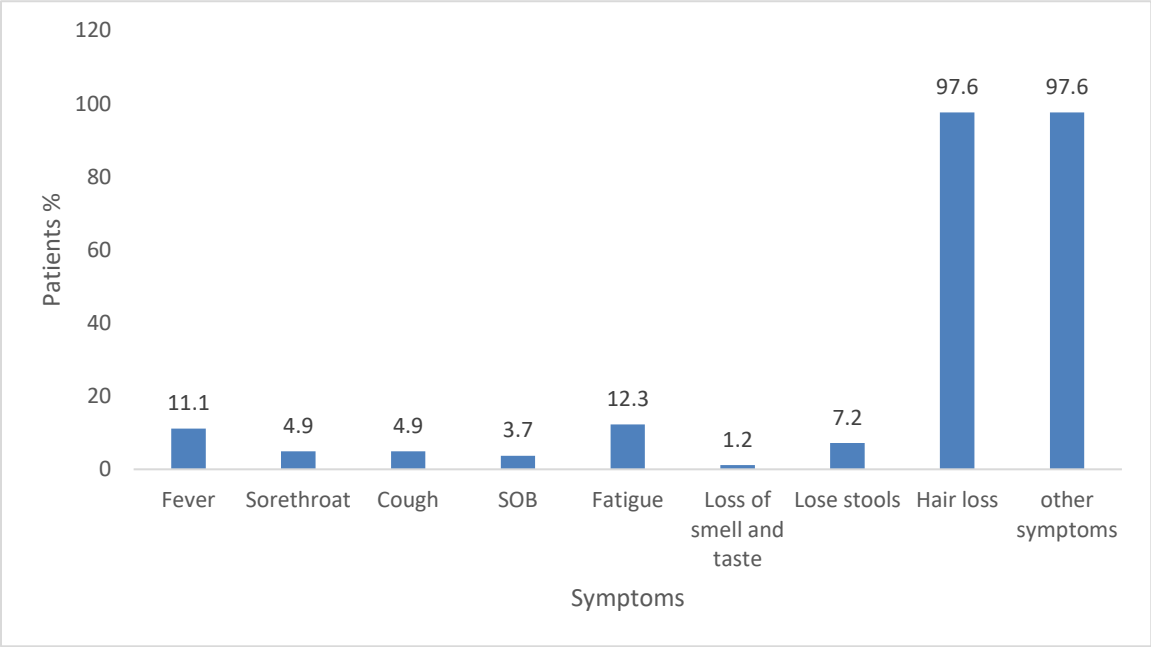


**Figure 1 COVID Symptoms in Patients on AVT**

**Discussion**

A study conducted by Messina V et al. enrolled 120 patients with COVID-19 infection; total of 30 patients were offered treatment with Sofosbuvir and Velpatasvir, and out of those who were treated with the above-mentioned medications, 60% had both infections Covid-19 and HCV and this study also stressed that Sofosbuvir and Velpatasvir when used in earlier phase of infection which can be an excellent help for hastening the spread of this deadly virus, hospitalization and stopping the disease progression (Messina et al., 2022).

In contrast, our study also enrolled 100 patients and treated them with Sofosbuvir and Velpatasvir, revealing the same results as mentioned in the study conducted in Italy by Messina V et al. (Messina et al., 2022), which is highly comparable with our investigation.

A study conducted by Sayad B at Farabi Hospital in Kermanshah Province, Iran. Revealed that there is no impact of Sofosbuvir and Velptasvair on COVID-19 disease, and if added, it didn't add any improvement or reduce the mortality in patients with moderate to severe covid-19 disease. However, Sayad B and colleagues have recommended that larger clinical trials are required to predict better the effects of Sofosbuvir and Velpatasvir in covid-19 disease (Sayad et al., 2021). In contrast, our study had patients with hepatitis C. It were already on treatment with Sofosbuvir and Velptasvir and who caught COVID-19 disease infection, which resulted in a reduction in the length of the disease and severity of symptoms so this difference can be explained by the basis of difference of population selected in the two studies.

Through this data, it has been observed that among the patients who were already on antiviral treatment for hepatitis C, namely Sofosbuvir and Velpatasvir, with or without Ribavirin, only 3.7% of people were COVID-19 positive and had very mild symptoms as compared to the general population in which average positivity rate was 8.15% from March 2020 to July 2021[1] and signs were more pronounced.

**Conclusion**

This indicates that this antiviral treatment can also have some protective and preventive role in COVID-19 infection. Further studies with a larger population are required to strengthen our observation.

**Declarations**

[Citation: Chachar, A.Z.K., Qureshi, S.R., Alvi, A.H., Sohaib, M., Ali, S., Ulfat M. (2023). To assess the incidence and severity of COVID-19 infection in patients already on hepatitis C treatment *Biol. Clin. Sci. Res. J.*, **2023***: 554*. doi: https://doi.org/10.54112/bcsrj.v2023i1.554]

**Data Availability statement**
All data generated or analyzed during the study are included in the manuscript.
**Ethics approval and consent to participate.**
Approved by the department Concerned.
**Consent for publication**
Approved
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**Conflict of interest**

The authors declared an absence of conflict of interest.

**Author contribution**

- *AIJAZ ZEESHAN KHAN CHACHAR* — *Development of Research, Methodology Design, Study Design, Review of Literature, Drafting article, Review of manuscript, final approval of manuscript*
- *SAHERISH RIAZ QURESHI* — *Review of Literature, Drafting article*
- *AFTAB HAIDER ALVI* — *Conception of Study, Final approval of manuscript*
- *MUHAMMAD SOHAIB* — *Data entry and Data analysis, drafting article*
- *SAJJAD ALI* — *Study Design, Review of Literature*
- *MAJDA ULFAT* — *Study Design, Data collection and data analysis*

**References**

Buonaguro, L., Tagliamonte, M., Tornesello, M. L., and Buonaguro, F. M. (2020). SARS-CoV-2 RNA polymerase as target for antiviral therapy. *Journal of Translational Medicine* **18**, 1-8.

Dustin, L. B., Bartolini, B., Capobianchi, M. R., and Pistello, M. (2016). Hepatitis C virus: life cycle in cells, infection and host response, and analysis of molecular markers influencing the outcome of infection and response to therapy. *Clinical microbiology and infection* **22**, 826-832.

Elfiky, A. A. (2020). Anti-HCV, nucleotide inhibitors, repurposing against COVID-19. *Life sciences* **248**, 117477.

Jácome, R., Campillo-Balderas, J. A., Ponce de León, S., Becerra, A., and Lazcano, A. (2020). Sofosbuvir as a potential alternative to treat the SARS-CoV-2 epidemic. *Scientific Reports* **10**, 9294.

Messina, V., Nevola, R., Izzi, A., De Lucia Sposito, P., Marrone, A., Rega, R., Fusco, R., Lumino, P., Rinaldi, L., and Gaglione, P. (2022). Efficacy and safety of the sofosbuvir/velpatasvir combination for the treatment of patients with early mild to moderate COVID-19. *Scientific Reports* **12**, 5771.

Sadeghi, A., Ali Asgari, A., Norouzi, A., Kheiri, Z., Anushirvani, A., Montazeri, M., Hosamirudsai, H., Afhami, S., Akbarpour, E., and Aliannejad, R. (2020). Sofosbuvir and daclatasvir compared with standard of care in the treatment of patients admitted to hospital with moderate or severe coronavirus infection (COVID-19): a randomized controlled trial. *Journal of Antimicrobial Chemotherapy* **75**, 3379-3385.

Sayad, B., Khodarahmi, R., Najafi, F., Miladi, R., Mohseni Afshar, Z., Mansouri, F., Rahimi, Z., Shirvani, M., Salimi, M., and Vaziri, S. (2021). Efficacy and safety of sofosbuvir/velpatasvir versus the standard of care in adults hospitalized with COVID-19: a single-centre, randomized controlled trial. *Journal of Antimicrobial Chemotherapy* **76**, 2158-2167.

Zhu, N., Zhang, D., Wang, W., Li, X., Yang, B., Song, J., Zhao, X., Huang, B., Shi, W., and Lu, R. (2020). A novel coronavirus from patients with pneumonia in China, 2019. *New England journal of medicine* **382**, 727-733.

Zumla, A., Chan, J. F., Azhar, E. I., Hui, D. S., and Yuen, K.-Y. (2016). Coronaviruses—drug discovery and therapeutic options. *Nature reviews Drug discovery* **15**, 327-347.