

Case Report on Management and Outcomes of COVID-19 in a Patient with Cirrhosis of Liver

ABSTRACT:

Introduction: The outbreak of coronavirus disease 2019 (COVID-19) has recently become a major problem affecting thousands of individuals around the world. It is understood that a significant proportion of patients infected with COVID-19 have disturbed liver function tests. This is a case report of a patient with liver cirrhosis and COVID-19.

Presenting complaints and investigations: A 39 year old female patient was admitted in AVBRH on 06/02/2021 with chief complaint of distension of abdomen, breathlessness, shortness of breath, reduced urine output over last 3 months. She had skin lesions over the hand, foot, abdomen and back with itching since 4 months. Physical examination, blood investigations and abdominal ultrasound showed cirrhosis of liver with gross ascites seen clinically. She had mild splenomegaly and gall bladder was enlarged. Laboratory tests showed elevated total bilirubin level. In peripheral blood examination, RBC count was low (3.66m/cu mm), Haemoglobin level was 8.2 gm/dl, Platelets count was low (1.19 lakh per cu. mm). WBC count was 3600 cu mm. Doctor diagnosed this as the case of cirrhosis of liver with pemphigus vulgaris with Covid-19.

Past history: 6 months ago, patient was admitted in Aarogyadham hospital Yawatmal with chief complaint of abdominal pain, loss of appetites, fever. On ultrasonography, she had splenomegaly for which she took the treatment.

The main diagnosis, therapeutic intervention and outcomes: This case was diagnosed as a case of Covid-19 with Cirrhosis of liver. Interferon alpha 2b solution was given for 10 days to help improve the immunity. Tab. Ursoldiolis (ursodeoxycholic acid) was used to dissolve gallstones.

Conclusion: Patient responded well to all medications and treatment and her recovery was good.

Key words: COVID-19, Cirrhosis, Liver, Splenomegaly, Pemphigus

Introduction and background:

Coronavirus disease 2019 (COVID-19), with the number of confirmed cases and deaths increasing regular, had become a major concern for global public health. The pandemic has raised fears that patients with liver cirrhosis may be more vulnerable to serious acute coronavirus 2 respiratory syndrome (SARS- CoV-2)¹ infection due to their systemic immunocompromised status. On the contrary, according to the available data, immunosuppression may even provide some protection against hyperactivated immune response. Published data suggest that a substantial proportion of patients infected with COVID-19 have abnormal liver function tests. However, mechanisms of liver injury induced by COVID-19 and clinical consequences of these alterations remain unclear. Recently, a COVID-19 and liver disease registry was launched never the less, there is still scarcity of data on how COVID-19 affects patients with pre-existing liver disease.²

Patient information:

Patient was admitted in Acharya Vinoba Bhave Rural Hospital with the complaints of distension of abdomen, abdominal pain, fever, breathlessness, shortness of breath, reduced urine output last 3 months. She also had skin lesions over the hand, foot, abdomen and back with itching since 4 months.

Primary concern and symptoms: Distension of abdomen, abdominal pain, fever, breathlessness, shortness of breath, reduced urine output fever and skin lesions over the hand, foot, abdomen and back with itching since 4 months.

Medical family and psychosocial history: Patient had medical history of cirrhosis of liver before 6 month and history of splenomegaly with pemphigus vulgaris. She took treatment for that but was not cured. She belongs to nuclear family. There are five members in her family. All family members are healthy except the patient. Patient looked anxious, depressed and confused.

Relevant past intervention with outcome: History of cirrhosis of liver with pemphigus vulgaris 6 month back for which she was hospitalized for 20 days. After ultrasonography, splenomegaly was observed. She took treatment for that and outcome was not good.

Physical examination and clinical findings:

General examination – Patient was unhealthy, had thin body built, had distension of abdomen. Hygiene was not maintained. Height of patient was 152 cm and weight was 45kg. Her vital parameters were normal.

Timeline: 6 months ago she was admitted in the hospital for 20 days for the treatment of cirrhosis of liver and pemphigus vulgaris. Currently she was admitted for the treatment of COVID-19 and cirrhosis of liver and pemphigus vulgaris. Interferon alpha 2b solution was given for 10 days to enhance immune function. Beta-blocker was given for 7 days in twice a day, Inj. Albumin 20% IV was given once a day for 7 days. Syp. Duphalac 15ml tds. Proteinex powder as supplementary. Abdominal tapping was done for ascites. Spo2 monitoring was done. Inj. Remdesivir IV was given BD to treat coronavirus infection. Lotion for skin lesions L/A Momate-T cream L/A Vaseline gauze were given for pemphigus vulgaris.

Diagnostic assessment: After physical examination and investigation, abdominal ultrasound showed cirrhosis of liver with gross ascites. Mild splenomegaly, gall bladder thickness was noted. Laboratory tests confirmed elevated total bilirubin level. In peripheral blood examination, RBC count was low (3.66m/cu mm), Haemoglobin level was 8.2 gm/dl, Platelets count was low (1.19 lakh per cu. mm). WBC count was 3600 cu mm. Doctor diagnosed this as the case of cirrhosis of liver with pemphigus vulgaris with Covid-19.

Prognosis: Was Good.

Therapeutic intervention:

Medical management was provided to the patient. Interferon alpha 2b solution was given for 10 days to enhance immune function. Beta-blocker was given For 7 days in twice a day, Inj. albumin 20% IV was given in once a day for 7 days. Syp. Duphalac 15ml TDS. Proteinex powder was given for protein supplementation. Treatment for pemphigus vulgaris included

oral corticosteroids, tab. Prednisone in BD. Immunoglobulin Tab. Ritagut 550mg was given in BD. She took all treatment and outcome was good. Her signs and symptoms were reduced, she resumed her routine activities. No any change in therapeutic intervention was reported.

Follow-up and Outcomes:

Patient condition was improved. Patient reported reduced breathlessness and ascites. Doctor advised follow up after 1 month and advised ultrasonography, blood investigations and blood pressure examination to know the further disease progression.

Intervention adherence and tolerability: Patient took all prescribed medications regularly. But sometimes, she refused to take medication. She also followed the dietician advise. Dietician had advised her salt restriction and high protein diet. Her intervention adherence was satisfactory. No adverse or unanticipated events were reported.

Discussion:

This was the first case of COVID-19 pneumonia with cirrhosis of liver reported in this region. The patient was diagnosed with COVID-19 and had varying degrees of signs of liver damage. Recent studies have shown that patients with COVID-19 and elevation of AST or ALT have worst outcomes.³

Given that cirrhosis is one of the leading causes of death and worldwide pandemic of SARS-CoV-2 infection affected the clinical course in all hospital settings, this case seemed critical. As per the study of Qiu H et. al. , the clinical characteristics of three COVID-19 patients with pre-existing decompensated cirrhosis were recorded for the first time. Two Child-Pugh C-class disease patients died, while the Child-Pugh Class B patient did not. In addition, the patient with the highest MELD scores survived, while the patient with the lowest MELD scores survived. This raises the likelihood that clinical decompensation events in patients with COVID-19 and pre-existing cirrhosis could be more significant in predicting outcomes.^{4,5} Related studies on cirrhosis of liver were reported by Bawankule et. al.⁶ and Kirnake et. al.⁷. Studies on special precautions and preparations of hospitals for Covid-19 pandemic have been reported⁸⁻¹¹. Articles on special reflections about different critical situations and infection control during Covid-19 pandemic were reviewed¹²⁻¹⁴. Patel et. al. reported on Interleukin-6 as predictor of 'non-alcoholic fatty liver disease' among 'insulin resistance syndrome' patients¹⁵⁻²⁰.

Conclusion:

Good clinical assessment, appropriate care, good nursing care by trained nurses and appropriate treatment can save lives even in complicated Covid infected cases.

COMPETING INTERESTS DISCLAIMER:

Authors have declared that no competing interests exist. The products used for this research are commonly and predominantly use products in our area of research and country. There is absolutely no conflict of interest between the authors and producers of the products because we do not intend to use these products as an avenue for any litigation but for the advancement of knowledge. Also, the research was not funded by the producing company rather it was funded by personal efforts of the authors.

Reference

1. Kreivenaite E, Gedgudas R, Valantiene I, Mickiene A, Kupcinskas J. COVID-19 in a Patient with Liver Cirrhosis. *J Gastrointest Liver Dis.* 2020 Jun 4;29(2):263-266. doi: 10.15403/jgld-2440. PMID: 32530994.
2. Higuera-de la Tijera F, Servín-Caamaño A, Reyes-Herrera D, Flores-López A, Robiou-Vivero EJA, Martínez-Rivera F, Galindo-Hernández V, Chapa-Azuela O, Chávez-Morales A, Rosales-Salyano VH. Impact of liver enzymes on SARS-CoV-2 infection and the severity of clinical course of COVID-19. *Liver Res.* 2021 Jan 12. doi: 10.1016/j.livres.2021.01.001. Epub ahead of print. PMID: 33520337; PMCID: PMC7831761.
3. Daniel, V. ., & Daniel, K. (2020). Diabetic neuropathy: new perspectives on early diagnosis and treatments. *Journal of Current Diabetes Reports, 1(1)*, 12–14. <https://doi.org/10.52845/JCDR/2020v1i1a3>
4. Xu Y, Qian Y, Gu Q, Tang J. [Relationship between D-dimer concentration and inflammatory factors or organ function in patients with coronavirus disease 2019]. *Zhonghua Wei Zhong Bing Ji Jiu Yi Xue.* 2020 May;32(5):559-563. Chinese. doi: 10.3760/cma.j.cn121430-20200414-00518. PMID: 32576347.
5. Qiu H, Wander P, Bernstein D, Satapathy SK. Acute on chronic liver failure from novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2). *Liver Int.* 2020 Jul;40(7):1590-1593. doi: 10.1111/liv.14506. Epub 2020 May 20. PMID: 32369658.
6. Rela M, Patil V, Narasimhan G, Jothimani D. COVID-19 in decompensated cirrhosis. *Hepatol Int.* 2020 Dec;14(6):1125-1127. doi: 10.1007/s12072-020-10092-4. Epub 2020 Sep 29. PMID: 32990918; PMCID: PMC7522183.
7. Buran, T., Sanem Gökçe Merve Kılınc, & Elmas Kasap. (2020). Prevalence of Extraintestinal Manifestations of Ulcerative Colitis Patients in Turkey: Community-Based Monocentric Observational Study. *Clinical Medicine and Medical Research, 1(2)*, 39-46. <https://doi.org/10.52845/CMMR/2020v1i2a8>
8. Bawankule, S., S. Kumar, A. Gaidhane, M. Quazi, and A. Singh. “Clinical Profile of Patients with Hepatic Encephalopathy in Cirrhosis of Liver.” *Journal of Datta Meghe Institute of Medical Sciences University* 14, no. 3 (2019): 130–36. https://doi.org/10.4103/jdmimsu.jdmimsu_88_18.
9. Kirnake, V., A. Arora, P. Sharma, M. Goyal, R. Chawlani, J. Toshniwal, and A. Kumar. “Non-Invasive Aspartate Aminotransferase to Platelet Ratio Index Correlates Well with Invasive Hepatic Venous Pressure Gradient in Cirrhosis.” *Indian Journal of Gastroenterology* 37, no. 4 (2018): 335–41. <https://doi.org/10.1007/s12664-018-0879-0>.
10. Kute, V., S. Guleria, J. Prakash, S. Shroff, N. Prasad, S. Agarwal, S. Varughese, et al. “NOTTO Transplant Specific Guidelines with Reference to COVID-19.” *Indian Journal of Transplantation* 14, no. 2 (2020): 85–89. https://doi.org/10.4103/ijot.ijot_62_20.
11. Daniel, V., & Daniel, K. (2020). Perception of Nurses’ Work in Psychiatric Clinic. *Clinical Medicine Insights, 1(1)*, 27-33. <https://doi.org/10.52845/CMI/2020v1i1a5>
12. Mujbaile, N.S., and S. Damke. “The Impact of COVID 19 on Pregnant Women and Child Health.” *International Journal of Research in Pharmaceutical Sciences* 11, no. Special Issue 1 (2020): 1367–73. <https://doi.org/10.26452/ijrps.v11i1SPL1.3645>.
13. Nibudey, A., and S. Vidya Baliga. “Preparing Hospitals in India for Covid-19 Pandemic.” *International Journal of Research in Pharmaceutical Sciences* 11, no. Special Issue 1 (2020): 333–41. <https://doi.org/10.26452/ijrps.v11i1SPL1.2722>.

14. Parwe, S.D., M.A. Nisargandha, and R. Thakre. "Role of Convalescent Plasma Therapy in New Coronavirus Disease (Ncovid-19): A Review." *International Journal of Research in Pharmaceutical Sciences* 11, no. Special Issue 1 (2020): 546–49. <https://doi.org/10.26452/ijrps.v11iSPL1.2846>.
15. Pasari, A.S., A. Bhawane, M.R. Balwani, P. Tolani, V. Ramteke, and N. Deshpande. "Knowledge about Covid-19 and Practices among Hemodialysis Technicians in the Covid-19 Pandemic Era." *International Journal of Nephrology* 2020 (2020). <https://doi.org/10.1155/2020/6710503>.
16. Daniel, V., & Daniel, K. (2020). Exercises training program: It's Effect on Muscle strength and Activity of daily living among elderly people. *Nursing and Midwifery*, 1(01), 19-23. <https://doi.org/10.52845/NM/2020v1i1a5>
17. Pate, M.Y., H. Tayade, and A.K. Singh. "Minimally Access Surgery and Endoscopic Procedures in COVID19 Pandemic." *Journal of Datta Meghe Institute of Medical Sciences University* 15, no. 1 (2020): 153–55. https://doi.org/10.4103/jdmimsu.jdmimsu_139_20.
18. Prasad, N., M. Bhatt, S.K. Agarwal, H.S. Kohli, N. Gopalakrishnan, E. Fernando, M. Sahay, et al. "The Adverse Effect of COVID Pandemic on the Care of Patients With Kidney Diseases in India." *Kidney International Reports* 5, no. 9 (2020): 1545–50. <https://doi.org/10.1016/j.ekir.2020.06.034>.
19. Patel, S., S. Bawankule, S. Acharya, S. Kumar, A. Gaidhane, S.Z. Quazi, M.N. Khatib, and P. Karadbhajane. "Interleukin-Six' as Predictor of 'Non Alcoholic Fatty Liver Disease' among 'Insulin Resistance Syndrome': A Study Protocol." *Annals of the Romanian Society for Cell Biology* 25, no. 1 (2021): 4161–68.
20. Anil Kumar Gupta, Kapoor D, Chauhan CS, Formulation and Evaluation Of Controlled Porosity Osmotic Pump Of Valsartan, *International Journal of Pharmaceutical & Biological Archives*, Vol. 2, Issue 3, 2011, ISSN (O) 2582-6050, pp. 967 – 972