DOI: https://doi.org/10.54393/pbmj.v5i4.385

PAKISTAN BIOMEDICAL JOURNAL
https://www.pakistanbmj.com/journal/index.php/pbmj/index
Volume 5, Issue 4 (April 2022)

Original Article

Successful Eradication of Hepatitis C Virus with Sofosbuvir based Antiviral Treatment Results in Improvement in Quality of Life in Cirrhotic Patients

Abdul Basit Shabbir[1*], Mahrukh Liaqat[1] and Hafiz Muhammad Atif[2]

[1]Faisalabad Medical University, Pakistan
[2]RHC Kamer Mushani Mianwali, Pakistan

ARTICLE INFO

Key Words:
HCV, Patients, Liver, Disease

How to Cite:
Shabbir, A. B. ., Liaqat, M. ., & Muhammad Atif, H. . (2022). Successful Eradication of Hepatitis C Virus with Sofosbuvir based Antiviral treatment results in improvement in quality of life in cirrhotic patients: Eradication of HCV with Sofosbuvir in cirrhotic patients. Pakistan BioMedical Journal, 5(4). https://doi.org/10.54393/pbmj.v5i4.385

***Corresponding Author:**
Abdul Basit Shabbir
Faisalabad Medical University

Received Date: 10th April, 2022
Acceptance Date: 23rd April, 2022
Published Date: 30th April, 2022

ABSTRACT

Hepatitis C virus (HCV) infection has long been a serious global public health concern; it is not only the main cause of end-stage liver disease, but it is also a leading source of liver cancer, but it also increases the risk of mortality from a variety of extrahepatic illnesses. **Objective:** The study's main objective is to see if successfully eradicating the Hepatitis-C virus with sofosbuvir-based antiviral therapy improves cirrhotic patients' quality of life. **Methods:** This cross-sectional study was conducted in Faisalabad Medical University from June 2019 to June 2020. The data was collected from 70 patients. The data was collected through a non-probability consecutive sampling technique. **Results:** The data were collected from 70 patients of both genders. We compared patients' quality of life. With sofosbuvir and ribavirin, 56 patients (79%) reached Sustained Virologic Response 12 (SVR12), Sofosbuvir, daclatasvir, and ribavirin were administered to 13 patients (18%), while sofosbuvir and ledipasvir were administered to two individuals (3%).**Conclusions:** Infection with chronic HCV, which is made worse by cirrhosis, has a major negative influence on the patient's physical, mental, social, and functional well-being, leading to a considerable reduction in their overall quality of life.

INTRODUCTION

Hepatitis C virus (HCV) infection has long been a serious global public health concern; it is not only a main cause of end-stage liver disease, but it is also a leading source of liver cancer. but it also increases the risk of mortality from a variety of extrahepatic illnesses. About 110 million individuals were projected to have a history of HCV infection in 2015, whereas 71.1 million people (1 % population) were predicted to be living with continuous viremic infection at the time of this writing [1]. Patients must have a long-term virologic response since there are no effective vaccinations for HCV, sustained virologic response (SVR). SVR is defined as an undetectable serum HCV RNA level after 12 weeks of interferon-based therapy or 24 weeks of interferon-free direct-acting antiviral (DAA) therapy [2].150 million people worldwide are infected with the Hepatitis C Virus (HCV), a single-stranded RNA virus from the Flaviviridae family that has six primary genotypes that assault the liver and causes chronic liver disease (GTs). HCV infection leads to progressive liver fibrosis, which may progress to cirrhosis, decompensation, and hepatocellular cancer in the long run [3]. Approximately, half a million individuals die each year because of liver damage caused by persistent HCV infection. HCV GTs 2 and 3 are thought to be responsible for up to 35% of all HCV infections worldwide, resulting in an estimated 58 million people being infected [4]. Dissimilarly to GT1, GTs 2 and 3 are more prevalent in low-income areas, such as Latin America and Asia, Africa sub-Saharan, and Eastern Europe. Prior to the discovery of direct-acting antiviral medicines, HCV GTs 2 and 3 were grouped together and considered simple to

DOI: https://doi.org/10.54393/pbmj.v5i4.385

treat genotypes [5]. Patients with cirrhosis and those who have previously failed to respond to therapy with HCV GT2 are more likely to have fast disease progression with GT3, according to recent research [6]. Chronic HCV-infected cirrhosis is expected to increase in the coming decade. Until recently, these patients had just one choice for treatment: a liver transplant [7-9]. The treatment of eradication in the HCV/HIV co-infected population presents a significant challenge to practitioners. As a matter of fact, HCV/HIV-coinfected individuals have greater rates of cirrhosis and liver decompensation illness than their mono-infected peers [10].

METHODS

This cross-sectional study was conducted in Faisalabad Medical University from June 2019 to June 2020. The data was collected from 70 patients. The data was collected through a non-probability consecutive sampling technique. All the patients aged between 18 to 60 years and having HCV infection treatment were included in this study. All the patients having any other medical issues or suffering from HBV were not included in the study. The quality of life of patients was measured through a questionnaire. All the demographic data were collected from selected patients and after that antiviral therapy was started. The questionnaire includes the data regarding patient's physical, social and economic values and well-being. According to the scoring system, there were three numbering systems, where one is minimum and three is maximum. All the data were analysed using SPSS version 20.

RESULTS

The data was collected from 70 patients of both genders. We compared the overall health and quality of life of a group of patients. SVR12 was achieved in 56 patients (79%), 13 patients (18 percent), and two patients (7%) who received sofosbuvir, daclatasvir, and ribavirin, as well as two patients (7%) who received sofosbuvir, ledipasvir, and ribavirin. SVR12 was also achieved in two patients (7%) who received sofosbuvir, daclatasvir, and ribavirin (3%). The mean Quality of life scores before treatment with DAAs was 22.936.04 (P-value 0.001), which rose to 38.637.36 following SVR (P-value 0.001). Differences in perception of physical well-being, as well as ratings of social well-being, improved considerably prior to therapy and after obtaining a persistent virological response. But there was no change in the emotional well-being score, which was the same before and after the therapy was given to the patient.

Well being	Before treatment	After treatment	P-value
Physical	5.67±2.45	8.98±3.67	< 0.001
Social	1.12±0.91	3.45±1.23	< 0.001
Functional	4.35±1.09	7.89±0.01	< 0.001
Emotional	10.98±3.45	12.42±1.09	>0.001

Table 1: Significant improvement of overall QoL scores

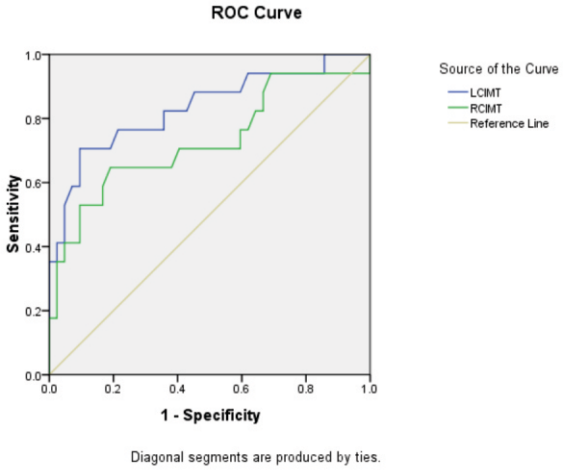

Figure 1: ROC curve of DAAs therapy in patients

HCV treatment has advanced rapidly since 2014, from long-term interferon-based regimens with poor efficacy and significant side effects to short-term well-tolerated, and very effective oral DAA treatment [11,12]. This success in HCV eradication has caused the WHO to alter its 2017 screening, care, and treatment recommendations [13]. Pan-genotypic DAAs may reduce the requirement for costly genotyping and frequent laboratory testing [14]. The recent approval of safe and effective oral DAAs has revolutionized the management of HCV patients, especially those with decompensated cirrhosis [15]. For individuals with advanced cirrhosis, NS3/4 protease inhibitors have been related to hepatotoxicity and hepatic decompensation [16-18]. According to clinical trials conducted mostly in Western nations, the SVR12 rates in patients who had decompensated CTP class B cirrhosis ranged from 83-96% and 56-87% after taking this combo regimen [19-21].

CONCLUSION

It is concluded that chronic HCV infection worsened by cirrhosis has a major influence on the patient's physical, mental, social, and functional well-being, resulting in considerable deterioration in the quality of life. After therapy for HCV infection, our study found a substantial increase in overall QoL ratings.

REFERENCES

[1] Younossi ZM, Stepanova M, Younossi Z, Stepanova M, Feld J, et al. Sofosbuvir and Velpatasvir Combination Improves Patient-reported Outcomes for Patients

DOI: https://doi.org/10.54393/pbmj.v5i4.385

with HCV Infection, With-out or with Compensated or Decompensated Cirrhosis. Clin Gastroenterol Hepatol. 2017,15(3):421-430.e6. doi: 10.1016/j.cgh.2016.10.037

[2] Nguyen DT, Tran TTT, Nghiem NM, Le PT, Vo QM, et al. Effectiveness of sofosbuvir based direct-acting antiviral regimens for chronic hepatitis C virus genotype 6 patients: Real-world experience in Vietnam.PLoSONE2020,15(5):e0233446.doi.org/10.1371/journal.pone.0233446

[3] Bourliere M, Gordon SC, Flamm SL, Cooper CL, Ramji A, et al. Sofosbuvir, Velpatasvir, and Voxilaprevir for Previously Treated HCV Infection. N Engl J Med. 2017,376(22):2134-46.doi.org/10.1056/NEJMoa1613512

[4] Li C, Yuan M, Lu L, Lu T, Xia W, et al. The genetic diversity and evolutionary history of hepatitis C virus in Vietnam. Virology. 2014,468-470:197-206. doi.org/10.1016/j.virol.2014.07.026

[5] Lai CL, Wong VW, Yuen MF, Yang JC, Knox SJ, et al. Sofosbuvir plus ribavirin for the treatment of patients with chronic genotype 1 or 6 hepatitis C virus infection in Hong Kong. Aliment Pharmacol Ther. 2016,43(1):96-101. doi.org/10.1111/apt.13429

[6] Shiffman ML, James AM, Long AG, Alexander PC. Treatment of chronic HCV with sofosbuvir and simeprevir in patients with cirrhosis and contraindications to interferon and/or ribavirin. Am J Gastroenterol. 2015,110(8):1179-85. doi.org/10.1038/ajg.2015.218

[7] Le Ngoc C, Tran Thi Thanh T, Tran Thi Lan P, Nguyen Mai T, Nguyen Hoa T, et al. Differential prevalence and geographic distribution of hepatitis C virus genotypes in acute and chronic hepatitis C patients in Vietnam. PLoS One. 2019,14(3): e0212734.doi.org/10.1371/journal.pone.0212734

[8] Teshale E, Lu M, Rupp LB, Holmberg SD, Moorman AC, et al. APRI and FIB-4 are good predictors of the stage of liver fibrosis in chronic hepatitis B: The Chronic Hepatitis Cohort Study (CHeCS). J Viral Hepat. 2014,21(12):917-20. Epub 2014/08/19. doi.org/10.1111/jvh.12279

[9] Yen YH, Kuo FY, Kee KM, Chang KC, Tsai MC, et al. APRI and FIB-4 in the evaluation of liver fibrosis in chronic hepatitis C patients stratified by AST level. PLoS One. 2018,13(6):e0199760.doi.org/10.1371/journal.pone.0199760

[10] Thanh Dung Nguyen T TTT, My Ngoc Nghiem, Nguyen Huyen Anh, Thanh Phuong Le, Minh Quang Vo, et al. Baseline Characteristics and Treatment Cost of Hepatitis C at Hospital for Tropical Diseases, Ho Chi Minh City, Vietnam in Direct-Acting Antiviral Treatment Era. Journal of Gastroenterology and Hepatology Research. 2019,8(5):1-9. doi.org/10.17554/j.issn.2224-3992.2019.08.857

[11] Gane EJ, Hyland RH, D. An et al. "Efficacy of Ledipasvir and Sofosbuvir, with or Without Ribavirin, for 12 Weeks in Patients with HCV Genotype 3 or 6 Infection," Gastroenterology, vol. 149, no. 6, pp. 1454–1461.e1,2015.doi.org/10.1053/j.gastro.2015.07.063

[12] European Association for the Study of the Liver, "EASL recommendations on treatment of Hepatitis C 2015," Journal of Hepatology, vol. 63, no. 1, pp. 199–236, 2015. doi.org/10.1016/j.jhep.2015.03.025

[13] Smith D, Magri A, and Bonsall D, "Resistance analysis of genotype 3 HCV indicates subtypes inherently resistant to NS5A inhibitors," Hepatology, 2018. doi.org/10.1002/hep.29837

[14] Hill A, Khwairakpam G, Wang J, Golovin S, Dragunova J, et al. High sustained virological response rates using imported generic direct acting antiviral treatment for hepatitis C. Journal of virus eradication. 2017,3(4):200-3. doi.org/10.1016/S2055-6640(20)30324-1

[15] Zeng QL, Xu GH, Zhang JY, Li W, Zhang DW, et al. Generic ledipasvir-sofosbuvir for patients with chronic hepatitis C: A real-life observational study. Journal of Hepatology. 2017,66(6):1123-9.doi.org/10.1016/j.jhep.2017.01.025

[16] Martini S, Sacco M, Strona S, Arese D, Tandoi F, et al. Impact of viral eradication with sofosbuvir-based therapy on the outcome of post-transplant hepatitis C with severe fibrosis. Liver Int. 2017 ,37(1):62-70. doi: 10.1111/liv.13193.

[17] Huang YT, Hsieh YY, Chen WM. et al. Sofosbuvir/velpatasvir is an effective treatment for patients with hepatitis C and advanced fibrosis or cirrhosis in a real-world setting in Taiwan. BMC Gastroenterol 21, 259 2021.doi.org/10.1186/s12876-021-01837-y

[18] Zignego A L, Monti M, & Gragnani L. Sofosbuvir/Velpatasvir for the treatment of Hepatitis C Virus infection. Acta bio-medica: Atenei Parmensis,2018,89(3),321-331.doi.org/10.23750/abm.v89i3.7718

[19] Juanbeltz, Regina et al. "Impact of successful treatment with direct-acting antiviral agents on health-related quality of life in chronic hepatitis C patients." PloS one vol.2018, 13,10 e0205277. doi: 10.1371/journal.pone.0205277

[20] Su Pin-Shuoa, Wu Sih-Hsiena, Chu Chi-Jena,b,*, Su Chien-Weia,b, Lin Chung-Chib,c, et al.Sofosbuvir-based antiviral therapy provided highly treatment

DOI: https://doi.org/10.54393/pbmj.v5i4.385

efficacy, safety, and good tolerability for Taiwanese chronic hepatitis C patients with decompensated cirrhosis, Journal of the Chinese Medical Association:2022,85(2):152-159. doi: 10.1097/JCMA.0000000000000653

[21] 21.Juanbeltz R, Martínez-Baz I, San Miguel R, Goñi-Esarte S, Cabasés JM, et al.Impact of successful treatment with direct-acting antiviral agents on health-related quality of life in chronic hepatitis C patients. PLoS ONE 2018,13(10): e0205277. doi.org/10.1371/journal.pone.0205277