

# Clinical Assessment of Pharmacotherapeutic Plan for Virologic Response of Hepatitis C Virus

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## Case report

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## Abstract

Hepatitis C is triggered by the presence of hepatitis C virus (HCV) where acute and chronic hepatitis causes mild to severe illness lasting for few weeks to lifelong illness. The HCV is a bloodborne virus having most common modes of infection through exposure to even small quantities of contaminated blood and this may trigger through contaminated injection drug use, unsafe injection practices, hazardous health care, transfusion of unscreened blood or blood products and sexual practices. In 2016, WHO estimated roughly 399, 000 people died from HCV frequently from liver cirrhosis and hepatocellular carcinoma (HCC) which is primary liver cancer. Presently, there is no effective vaccine in contradiction of hepatitis C. Fever, fatigue, decreased appetite, abdominal pain and joint pain are common clinical presentations. Investigation for anti-HCV antibodies alongwith serological testing identifies individuals who have been infected with HCV. Ribavirin and sofosbuvir are the main anti-viral drugs which can treat the hepatitis C. In this case scenario, referred patient of 40 years old female is suffering from hepatitis C having severe abdominal pain along with generalized body weight. Confirmation of hepatitis C for this patient was done by anti-HCV antibodies, LFT report and ultrasound which also reveal fatty liver. Symptomatically, she was treated by antiviral drug therapy which finally stabilizes her severe abdominal pain and other clinical presentations along with the condition of hepatitis C.

**Keywords:** Hepatitis C; Pharmacotherapeutic Plan; Clinical Assessment; Ribavirin; Sofosbuvir

**Abbreviations:** HCV: Hepatitis C Virus; HIV: Human Immunodeficiency Virus; INF: Interferon; HCC: Hepatocellular Carcinoma.

## Introduction

Hepatitis C virus (HCV) is a foremost leading reason of liver diseases globally and an impending source of

significant morbidity as well as mortality in future [1]. HCV is considered in Hepacivirus genus and Flaviviridae family [2]. Up to 7 million individuals internationally are infected with both of the viruses including human immunodeficiency virus (HIV) & heaptitis C virus (HCV) [3]. HCV infection is connected with higher rates of liver cirrhosis, fibrosis, hepatocellular carcinoma and overall higher mortality [4]. Re-use of contaminated and inadequately sterilized syringes as well as needles used in

medical, paramedical & dental measures [5]. The annual rate for HCC development between patients of liver cirrhosis is presently predicted as 1.6% [6]. Combination of sofosbuvir with ribavirin for 24 weeks has also revealed proper treatment for patients with genotype 1 of HCV [4]. Ribavirin when used in combination with pegylated interferon alfa (INF), leads to improved restoration of patient's immune response from HCV [7].

### Case Presentations

A 40 years old female comes to physician for the clinical presentations of severe abdominal pain, generalized body weakness, Sore muscles and anorexia (decreased appetite). She is also suffering from fever. Her past medical history includes peptic ulcer. She frequently

uses Panadol, in case of mild pain and fever. She belongs to a Poor Socio-economic status.

### On Examination (O/E)

Sign	Normal Range	Results
Blood Pressure	120/80 mmHg	110/80 mmHg
Heart Rate	72 BPM	78 beats/min
Temperature	98°F	102°F

**Table 1:** Vital signs of patient.

### Laboratory Findings

Ultra sound of patient shown that the size of liver is 15.8cm and also fatty liver is present. Anti-HCV test is positive for this patient. Other diagnostic tests are described in Tables 2 and 3.

Tests	Normal Range	Unit	Values	Comment
Wbcs	4-11	$\times 10^3 / \mu\text{L}$	<b>12.7</b>	Above Normal
Total Rbc Count	4.0-5.5	$\times 10^6 / \mu\text{L}$	4.5	Normal
Hemoglobin	13-17 (MALE),	g/dL	13	Normal
	12-15 (FEMALE)			
Platelets	150-400	$\times 10^3 / \mu\text{L}$	230	Normal
HCT (PCV)	40-75	%	40	Normal
MCV	20-45	fl	<b>50</b>	Above Normal
MCH	1-20	Pg	<b>22</b>	Above Normal
MCHC	65-110	%	33	Normal

**Table 2:** Complete blood count of (CBC) patient.

Liver Function Test				
Test	Normal Range	Unit	Value	Comments
Bilirubin Total	0.2-1.2	(mg/dl)	1.4	Above Normal
Bilirubin conjugated	< 0.5	(mg/dl)	0.7	Above Normal
Bilirubin unconjugated	0.1-1	(mg/dl)	0.5	Normal
ALT (SGPT)	5-55	(U/L)	73	Above Normal
AST (SGOT)	5-35	(U/L)	77	Above Normal
Alkaline Phosphatase	40-150	(U/L)	120	Normal
GAMMA G.T.	10-64	(U/L)	72	Above Normal
Total protein	6-8.5	(g/dl)	8.1	Normal
Serum Albumin	3.5-5.0	(g/dl)	3.6	Normal
Serum Globulin	1.8-3.4	(g/dl)	3.9	Above Normal
A/G Ratio	1.2-2.2	(g/dl)	0.9	Below Normal

**Table 3:** Liver function test (LFT) of patient.

## Pharmacotherapeutic Plan

Current Prescribed Medication					
Brands	Generics	Dosage form	Frequency	Dose	Indications
Sovaldi,	Sofosbuvir	Tablet	OD	400mg	HCV infection
Daclavia	Daclatasvir	Tablet	OD	60mg	HCV infection
Risek	Omeprazole	Capsule	OD	40mg	Treat Gastric disturbance

**Table 4:** Prescribed Medication for hepatitis C treatment.

### Clinical Pharmacist Interventions

Tab. Sovaldi & Daclavia are more effective in patients with compromised liver function, when given with Ribavirin, 800 mg OD. Hence, Ribavirin 800 mg OD (400mg, 2 caps. BD) was added to prescribed pharmacotherapeutic plan of this patient.

### Care Plan

- Follow up for routine tests and examination is advised.
- LFTs and other lab tests to be repeated after every 3 months.
- Adherence to therapy is advised and assessed at each follow up.

### Follow Up Requirement

To assess the following parameters

- HCV progression into HCC (hepatocellular carcinoma)
- Liver Function test
- Adherence to therapy

### Discussion

Hepatitis C virus (HCV) contaminates an expected 170 million individuals globally and therefore epitomizes a viral disease as pandemic case [8]. According to WHO Report in 2001, chronic liver diseases were accountable for 1 to 4 million deaths, comprising 796,000 due to liver cirrhosis and 616,000 deaths due to liver cancer [9]. In this case study, 40 years old patient is complaining about the severe abdominal pain, generalized body weakness, Sore muscles and anorexia. Her previous history is about peptic ulcer which has been cured after triple therapy.

According to clinical assessment Under prescription of HCV medications for patient was done. So, the first priority should be given to prescribing all required drugs to the patient during problem prioritization. As the goal of therapy is reduction of HCV infection in patient with ultimate cure. Hence Ribavirin, 800 mg OD (400mg, 2

caps. BD) was recommended by clinical pharmacist for this patient. Oral regimen of sofosbuvir along with ribavirin for 12 or 24 weeks predominantly treats hepatitis C [10]. Daclatasvir with sofosbuvir and ribavirin for almost 12 weeks resulted in a treatment of virologic response in patients either coinfecting with HIV-1 and HCV genotypes 1 or only HCV [11]. Follow up for routine tests and examination was advised to patient for evaluation of treatment. Adherence to therapy was advised for prevention of hepatocellular carcinoma.

### Conclusion

In this case scenario, the patient was suffering from hepatitis C. Recently, hepatitis is leading liver disorder so our aim was to treat severe abdominal pain of patient due to HCV and further progression of disease into hepatocellular carcinoma (HCC). She was treated with Antiviral therapy. Abdominal pain, generalized body weakness of patient was relieved after using sofosbuvir, daclatasvir and Ribavirin. Patient was stable after treatment with these antiviral agents.

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