# Hepatitis C Virus and Treatment at Tobruk Liver Disease Center

**(Original Research Article)**

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## Abstract

A liver is vital organ in human body. It's not just responsible for nutrient and filters of the blood but also for fights infections. Because of this function, any inflammatory condition of the liver causes hepatitis and it's commonly caused by a viral infection. Globally, viral hepatitis types are hepatitis A, hepatitis B, hepatitis C, hepatitis D& hepatitis E. A substantial health threat to humans and causes approximately 700,000 deaths each year worldwide is recorded by hepatitis C virus. However, 30 years after the discovery of this virus in 1989, nearly perfect antiviral drugs that can clear up to 95% of this virus have been developed. This study investigated which type of hepatitis (A,B&C) was common between patients and also the most male & female patients who at Tobruk liver centre in Tobruk city, in addation, the common drug that used in Liver disease centre in Tobruk. The data was collected from Tobruk liver disease centre from January to March. It shows that hepatitis C was common among patients. Females are most HCV infected than male as 22 to 17 respectively. The common drug used for HCV treatment in Tobruk liver disease centre is Sofosbuvir - Ledipasvir 400/90mg tablet (Harmony).

**Keywords:** liver disease, hepatitis C, treatment hepatitis C, Tobruk liver disease centre.

## 1. Introduction

The liver is a vital organ and supports almost every other organ in the body. Because of its strategic location and multidimensional functions, the liver is also prone to many diseases. The bare area of the liver is a site that is vulnerable to the passing of infection from the abdominal cavity to the thoracic cavity. Liver diseases may be diagnosed by

liver function tests–blood tests that can identify various markers. For example, acute-phase reactants are produced by the liver in response to injury or inflammation (Musleh, M. M., et al, 2019).

Hepatitis is a common condition of inflammation of the liver. The most usual cause of this is viral, and the most common of these infections are hepatitis A, B, C, D, & E. Some of these infections are sexually transmitted (Czelusta, A., et al., 2000) . Inflammation can also be caused by other viruses in the family Herpesviridae such as the herpes simplex virus (Mehraj, V., & Routy, J. P. 2015). Chronic (rather than acute) infection with hepatitis B virus or hepatitis C virus is the main cause of liver cancer. Globally, about 248 million individuals are chronically infected with hepatitis B, and 142 million are chronically infected with hepatitis C . Globally there are about 114 million and 20 million cases of hepatitis A and hepatitis E respectively, but these generally resolve and do not become chronic.

Hepatitis D virus is a "satellite" of hepatitis B virus (can only infect in the presence of hepatitis B), and co-infects nearly 20 million people with hepatitis B, globally (Hofstraat, S. H. I., et al., 2015). The authors assessed gender differences in hepatitis C infection wheare notces the rate of hepatitis C infection among men was nearly twice that among women (Butterfield, M. I., et al, 2003). HCV infection affects men and women differently. Women are more likely to have spontaneous clearance of the virus and less likely to have disease progression if they are chronically infected. However, in both men and women, the burden of the disease will continue to be lasting and significant in the years to come (Baden, R., Rockstroh, J. K., & Buti, M. 2014). In last studied investigated the distribution of HCV prevalence and genotypes among different gender and age patients with chronic HCV infection in WuHan from 2011 to 2015. The highest prevalence of HCV infection was at the age group 50-59 (25.85 % of 2685) and the lowest prevalence was 0-9 (0.93 % of 2685). were more common in female patients than males (Niu, Z., Zhang, P., & Tong, Y. 2016).

Those with chronic hepatitis C are advised to avoid alcohol and medications toxic to the liver. They should also be vaccinated against hepatitis A and hepatitis B due to the increased risk if also infected. Use of acetaminophen is generally considered safe at reduced doses. No steroidal anti-inflammatory drugs (NSAIDs) are not recommended in those with advanced liver disease due to an increased risk of bleeding. Ultrasound surveillance for hepatocellular carcinoma is recommended in those with accompanying cirrhosis. Coffee consumption has been associated with a slower rate of liver scarring in those infected with HCV(Novo-Veleiro, I., et al., 2016). In the past decade, there have been many changes in the treatment of HCV with the addition of new and more effective agents. Harvoni is the first once-daily, fixed-dose oral combination therapy that has been approved for HCV genotype 1. It is unique in that it does not require the coadministration of interferon and/or ribavirin and has demonstrated superior SVR rates at the end of post-treatment week 12 compared to historical controls. As of December 19, 2014, Harvoni had earned a place in the HCV treatment guidelines, along with Viekira Pak (Gritsenko, D., & Hughes, G. 2015).

There is currently no effective vaccine against hepatitis C (WHO.,2021). The aim of study investigated which type of hepatitis (A,B&C) was common between patients and also the most male & female patients who HCV infection at Tobruk liver centre.

## 2. Materials and Methods

### *Sampling*

The samples were taken by the Liver disease Center in Tobruk, It's collected from January to March of the year 2021, and there were 39 samples as shown Table 1.

### *Method Tests and Treatment at Tobruk Liver Centre*

The hepatitis C test identifies hepatitis C virus antibodies, detects the viral RNA, and/or identifies the hepatitis C strain. The hepatitis C test may include several different tests:

- **Hepatitis C RNA test** Hepatitis C antibody test: Antibodies are part of the body's response to infection. The hepatitis C antibody test determines whether a patient has been exposed to the hepatitis C virus at some point in their lives. If this test is positive, the next step is a hepatitis C RNA test.

- **Hepatitis C RNA test**: RNA is a type of genetic material from the hepatitis C virus that can be detected in the blood. If the test results are positive after a hepatitis C antibody test, doctors use a hepatitis C RNA test to look for and/or measure the amount of virus in the blood. Qualitative HCV RNA tests can detect the presence of HCV RNA, while quantitative HCV RNA tests measure the amount of HCV RNA. To understanding the amount of hepatitis C virus in the blood helps monitor response to treatment.
- **Genotype Testing:** There are at least six types of hepatitis C, which are also called strains or genotypes. Treatment for hepatitis C depends on the strain, so genotype testing is done to guide treatment in patients diagnosed with HCV infection.amount of hepatitis C virus in the blood helps monitor response to treatment.

Screening is recommended at least once for all adults 18 years of age or older, except for settings with very low prevalence of hepatitis C virus. Screening is also recommended during pregnancy and for patients of any age with risk factors for hepatitis C infection. In patients with risk factors, periodic examination is recommended as long as the risk factors persist.

In the city of Tobruk in the Hepatitis Center, Harvoni found the most commonly used drug and achieved a success rate of about 99% in patients with hepatitis C because it is more effective and has no side effects.

**Table 1**. Total Patients with HCV and Different Age.

| years | Male | Female |
|---|---|---|
| 15-25 | 0 | 0 |
| 25-35 | 4 | 4 |
| 35-45 | 3 | 1 |
| 45-55 | 4 | 6 |
| 55-65 | 2 | 6 |
| 75-85 | 2 | 1 |

## 3. Results and Discussion

The aim of study investigated type of hepatitis (A,B&C) that was common between patients, and the total of males and females infected with HCV at Tobruk liver disease centre. Data were collected from January to March of the year 2021, at Tobruk liver disease centre. There were 39 HCV patients.The graph below shows that the total average of males and females infected with hepatitis A,B. nd C.

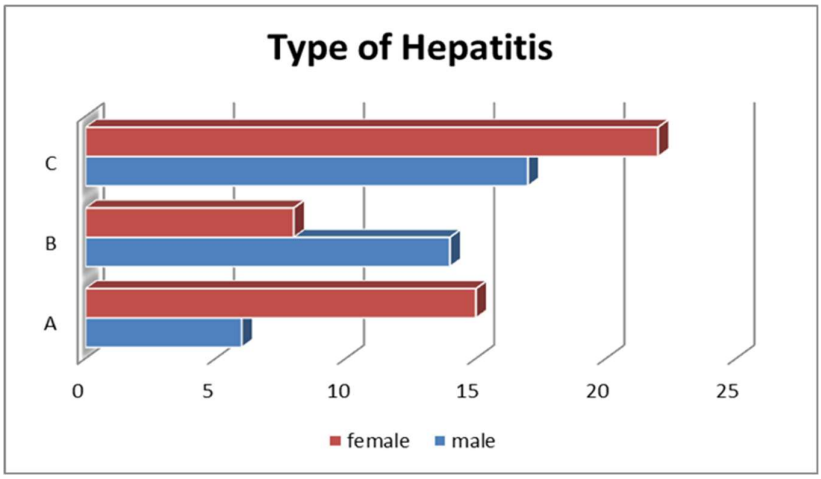


**Figure 1.** Patients with Hepatitis A.B & C.

As shown in fig 1 where the patients with hepatitis C was more than A and B. in addition, In addition, the women are affected more than men by hepatitis C and hepatitis A.

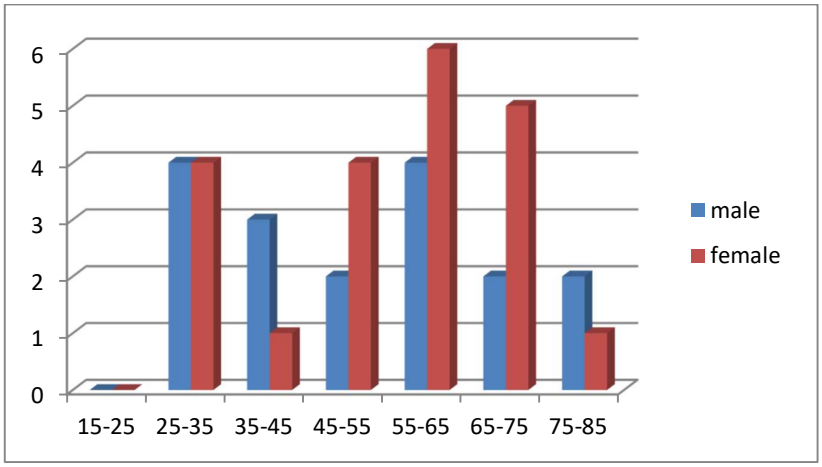


**Figure 2**. Ratio Age and Gender with HCV..

The highest prevalence of HCV infection was at the age group (55-65y) where the females affected more than males. Age group ( 25-35 y) between males and females are equal. In the age group (35-45, 75-85), the man affected more than female whereas, in age group (15-25 y) no affected as shown in fig 2. During the study in Tobruk, it was found that females were most susceptible to infection with hepatitis C virus. This indicates that elderly women were at the risk of hepatitis C than younger ages to develop liver cirrhosis. In comparison, young women infected with chronic hepatitis C virus show slow progression of liver disease, including cirrhosis and hepatocellular carcinoma. Women are at higher risk of hepatitis C infection due to menopause, women who give birth by caesarean section. This is due to contaminated blood transfusions, or the carrier itself may be infected with hepatitis C virus.

Butterfield et al, (2003) conducted studies assessed gender differences in hepatitis C infection. Also, the rate of hepatitis C infection among men was nearly twice that among women (Butterfield, M. I., et al, 2003). This agree with study with age group (25-35y) where the rate HCV infection was equal. Women are at higher risk of hepatitis C infection due to menopause. Biological studies in British Columbia suggest that postmenopausal women may lose the supposed protective effect of estrogenic on the liver in the postmenopausal period (Niu, et al. 2016). The highest prevalence of HCV infection was at the age group 50-59y (25.85 % of 2685) and the lowest prevalence was 0-9 (0.93 % of 2685) were more common in female patients than males (Niu, et al. 2016). This is agreed with our study only with age group that affected. But in our study the females affected more than males.

Novo-Veleiro, et al., (2016) comducted study those with chronic hepatitis C are advised to avoid alcohol and medications toxic to the liver. Ultrasound surveillance for hepatocellular carcinoma is recommended in those with accompanying cirrhosis. Coffee consumption has been associated with a slower rate of liver scarring in those infected with HCV (Novo-Veleiro et al., 2016). That agree what the Tobruk liver

disease centre was recommended. Gritsenko and Hughes (2015) conducted study harvoni had earned a place in the HCV treatment guidelines, along with Viekira Pak (Gritsenko, D., & Hughes, G. 2015). This gives an agreement with this study. Harvoni was the most commonly used drug and achieved a success rate of about 99% in patients with hepatitis C because it is more effective and has no side effects. There is currently no effective vaccine against hepatitis C (WHO.,2021).

## 4. Conclusion

The aim of study investigated which type of hepatitis (A, B&C) was common between patients and also the most male & female patients who HCV infection at Tobruk liver centre. It was found that females are most susceptible to infection with hepatitis C virus.The highest prevalence of HCV infection was at the age group (55-65) where the femles affected more than males. In the city of Tobruk in the Hepatitis Center, Harvoni found the most commonly used drug and achieved a success rate of about 99% in patients with hepatitis C because it is more effective and has no side effects. In the city of Tobruk in the Hepatitis Center screening is recommended at least once for all adults 18 years of age or older, except for settings with very low prevalence of hepatitis C virus. Screening is also recommended during pregnancy and for patients of any age with risk factors for hepatitis C infection. In patients with risk factors, periodic examination is recommended as long as the risk factors persist. More studies are needed to confirm these results

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