Review in Diagnosis and Treatment of Hepatitis C- Patients

Salwa Hamza Hussein[1], Suhair Abdul Kareem Habeeb[2], Wifaq Ahmed Mahmood[3] , Zainab Abd Ameer Mohammed[4], Butheena Abed alhassan Nasser[5], Methak abd Alrazak Aziz[6]

[1,2,3,4,5,6]Department of Biology, College of Education for Girls, Kufa University, Kufa, Iraq

Abstract:

A viral disease of the liver, with a gradual onset in which the infection may be asymptomatic (in more than 9.% of patients) or mild. The infection turns into a chronic phase in a high percentage of patients (5.%-8.%). The disease progresses to cirrhosis or cancer in about half of chronic cases. Hepatitis c virus infection is a major public health problem worldwide. The country bears the largest burden in the world in terms of hepatitis B infection and will be a major contributor to the global elimination of hepatitis C disease by 2030. The country has made good progress in reducing hepatitis B virus infection. Hepatitis C virus infection in the past three decades. The achievements are mainly attributable to high vaccination coverage rates among children and high coverage of an appropriate dose of birth vaccine to prevent mother-to-child transmission of hepatitis C virus (both>95%). However, Iraq still faces challenges in achieving its target of reducing hepatitis C mortality by 65% by 2030. Building on the objectives of the WHO Global Health Sector Strategy on Viral Hepatitis 2016-2023, we highlight other priorities for action to eliminate hepatitis B virus in Iraq to achieve the impact goal of reducing mortality, we suggest prioritizing service coverage objectives for diagnosis and treatment. First, there is a need to improve the diagnostic and treatment capabilities of medical institutions and health workers. Second, the government needs to reduce the financial burden of healthcare on patients. Third, there is a need for better coordination across existing national programs and resources to create an integrated prevention and control system that covers prevention, examination, diagnosis and treatment of HIV infection. Hepatitis C across the life cycle In this way, progress can be made towards the goal of eliminating hepatitis C in Iraq by 2030.

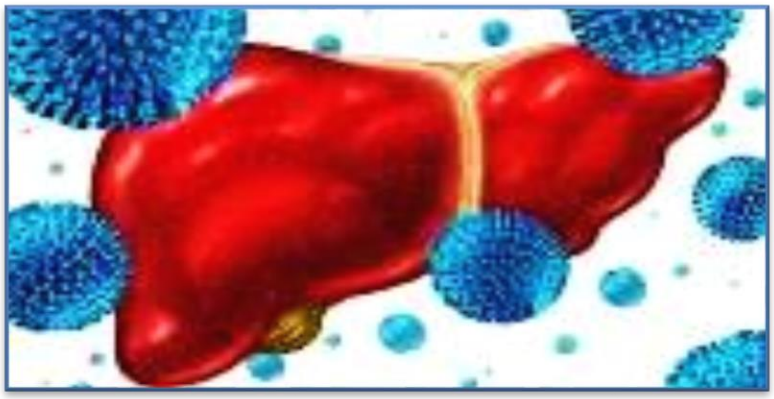
Key words: Hepatitis C, Health problem, Infection, Diagnosis and treatment

Introduction

Hepatitis C is an infectious disease that mainly affects the liver. The hepatitis C virus (HCV) is the cause of this disease. [1] Hepatitis C is often asymptomatic, but chronic infection can lead to scarring of the liver and, after several years, cirrhosis. In some cases, people with cirrhosis also have liver failure, liver cancer or very swollen veins in the esophagus and stomach, which can lead to heavy bleeding and death. [2] .C virus infection occurs mainly through blood mixing due to intravenous injection of drugs, non-sterile medical equipment and blood transfusions. The number of people living with Hepatitis C in the world is estimated at 130-170 million. Scientists began studying the hepatitis C virus during the seventies of the twentieth century and confirmed its existence in 1989. [3] It is not known if it causes disease in any other animals Interferon and ribavirin are the main drugs for the treatment of hepatitis C. About 50-80% of patients treated with these drugs are cured. People who develop cirrhosis or liver cancer may need a liver transplant, but the virus usually reappears after transplantation. [4] However, there is no vaccine for hepatitis C.

Types of hepatitis C: First: Acute condition: acute illness that may begin with one or several symptoms such as high fever, headache, loss of appetite, malaise, severe fatigue, nausea,

vomiting, diarrhea, abdominal pain and elevation of the enzyme alanine aminotransferase in the blood to a level greater than 4. International unit per liter (Alanine amino-transferase) or jaundice The chronic condition varies from the absence of any symptoms to the presence of symptoms of chronic hepatitis to cirrhosis and liver cancer The probable case is incompatible with acute (clinically and laboratory), positive anti-HCV, ALT or SGPT above normal, EIA-positive for anti-HCV and not confirmed by other, more specific tests or the CUT point unknown Finally, the confirmed case is a person who is positive for a laboratory diagnosis and does not correspond to the acute case[7] (Figure 1)



Etiology: Hepatitis C virus is transmitted through contact with the blood or other bodily fluids of a person infected with hepatitis C virus and hepatitis C transmitted through contact with body fluids containing hepatitis C virus such as: Vaginal blood Secretions or fluids Drug injection Having sex with an infected person or sharing razors increases the risk of hepatitis infection [8] .

Incubation period: Often 6-9 weeks (usually between two weeks – 6 months). Chronic infection may persist for twenty years before cirrhosis or hepatic tumor begins.

Infectious agent: Hepatitis C virus (HCV). It is a capsular RNA virus

Symptoms and signs: Signs and symptoms of the disease include loss of appetite, vague abdominal discomfort, nausea, vomiting, joint pain, and hepatitis C is clinically difficult to distinguish from other types of hepatitis caused by infection with other viruses. The tendency of the disease to progress to acute phase is also more severe in hepatitis C than in hepatitis B .

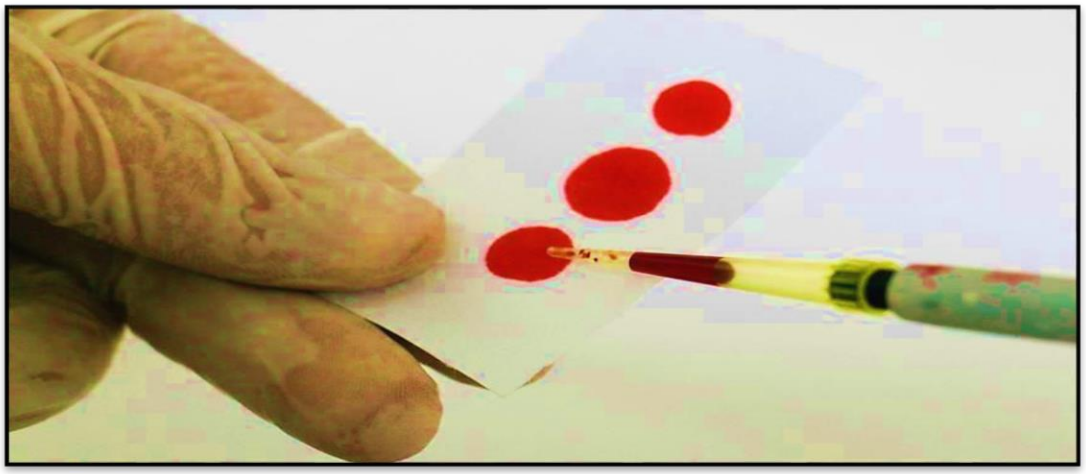
How hepatitis C is transmitted: Hepatitis C virus is an infection caused by exposure to contaminated blood with the virus or body fluids containing contaminated blood. This virus is 50-100 times more contagious than HIV Possible forms of sexual transmission include contact, blood transfusion or blood transfusion. One of the blood materials, the reuse of contaminated needles, syringes and vertical mother-to-child transmission during childbirth is transmitted mainly by injection. Sexual transmission has also been shown to occur as well as from mother to newborn but to a lesser extent of its injectable transmission. [9]. In the absence of medical intervention, there is a 20% chance that the virus will be transmitted to the baby during childbirth if the mother is a carrier of antigens for this virus (i.e. infected with it) and the probability increases to 90% if the mother is in the process of producing type E antigens (antigen produced by the virus during its replication). 12] The presence of the virus can be detected within 30-60 days after infection and can be detected The incubation period of the virus averages 75 days and can range from 30-180 days[12]. Hepatitis C virus infection may

be serious (subjective) or chronic (lo Hepatitis D can only occur in conjunction with hepatitis B infection because hepatitis D uses the hepatitis B surface antigen to form the protein shell of the virus[15]. Hepatitis D infection increases the risk of cirrhosis and liver cancer. Nodular arteritis is more common in people infected with the hepatitis B virus[16].

Symptoms of hepatitis C: Most children and infants with hepatitis C show no signs or symptoms of the disease at all as well as in some adults. Symptoms and signs usually appear after about 12 weeks and may be mild at times or severe and severe at other times. Symptoms include some of the symptoms or signs listed below include loss of appetite, nausea, vomiting, weakness, fatigue, abdominal pain, especially in the liver area, dark urine, yellowing of skin color

Complications of hepatitis C: Hepatitis C causes many complications including acute liver failure that may need a liver transplant, liver cancer, cirrhosis, a condition where the liver is permanently scarred and hepatitis D and often causes chronic hepatitis C leads to more serious complications such as cirrhosis and liver cancer and also when the liver stops working properly, it can lead to liver failure that causes many complications, They are bleeding disorders, ascites, portal hypertension

Diagnosis: An increase in liver function enzymes more than two and a half times, in addition to a positive test for the presence of immune antibodies to the hepatitis C virus (anti-HCV), in addition to a positive complementary test (immunoblot assay) to diagnose hepatitis C. (In addition to negative testing for the presence of immune antibodies to hepatitis millennium (IgM anti-HAV negative) as well as negative test for the presence of immune anti-HBc antibodies (negative IgM anti-HBc) or negative for the presence of(negative IgM anti-HBc) or negative presence of surface antigen (HBsAg negative) in the patient's serum, if these tests are performed). And to show the presence of immune antibodies against the hepatitis C virus. There are many tests used for this purpose (EIA), but these tests cannot distinguish between acute or chronic infections or cured patients. The presence of infection in people positive for the EIA test is then confirmed by a test to check for the presence of HCV RN Target amplification techniques using polymerase chain (PCR) or amplification through cloning (TMA) have been developed as qualitative or quantitative tests in RNA DNA. A single positive RNA assay confirms active replication of the virus, but a single negative assay does not rule out the presence of a virus in the blood and may reflect a transient decrease in the level of the virus below the detection level of the assay[19] (Figure 2).



Treatment of hepatitis C: Acute hepatitis C usually does not require treatment and infection in adults often goes away on its own[20] and early treatment of the virus can be present in a very small percentage, <1% in people who have a very strong infection (capitive hepatitis). On the other hand, the treatment of very chronic infections may be necessary to reduce cirrhosis and liver cancer as well[21]. Usually people with chronic diseases, this leads to the persistence of the enzyme alanine (PEGylated interferon) which is usually injected only once a week. However, there is variation between people in response, because some may be more likely to respond than others and this can be due to the genes and genetic material of the infected virus or the inheritance of the person himself[21] (Figure 3).

General control measures are applied against infection with the hepatitis B virus. Note that prophylactic immunoglobulin is of no use. Continued counselling for people who are not infected but are vulnerable to it, such as health care workers, while controlling hospital-borne diseases. Interferon therapy has been shown to Interferon alpha has an overall beneficial effect in treating about 25% of chronic hepatitis C cases, while steroids and acyclovir have been ineffective. Studies in patients receiving combined treatment with ribaferin and interferon have shown a significant increase in sustained response rates of up to 4.-5.%. However, both of these drugs have severe side effects that require close monitoring

New drugs used in treatment: It is more effective and has few side effects, but it has the disadvantage of its high price. There are currently to

1) **Sofosbuvir:** A tablet is used daily for three months and may increase according to the patient's condition with interferon and ribavirin, and this drug is suitable for all types of hepatitis C virus

2) **Semiprivir:** A tablet is used daily for three months and may increase according to the patient's condition with interferon and ribavirin, and this drug is not suitablefor all types of hepatitis c virus.

These new drugs are less effective if the liver is advanced (Cirrhosis), and there is not enough information about their effectiveness in cases of recurrence after liver transplantation .

Period of communicability: They persist from a week or more before the first symptoms begin and indefinitely in most people. There is an apparent relationship between elevated liver enzymes ALT and high concentration of the virus.

Protection: Since 1991, the United States has recommended giving infants the hepatitis C vaccine[18]. Most of these vaccines are given in three doses over a period of months, most of these vaccines are given in three doses over months, meaning that the serum blood of the vaccinated person has a concentration of 10 ml - IU / ml, that is,(10 mIU / ml) of antibodies (anti-HBs) which means that the vaccine gave a positive result and that the recipient's body. It has become immune to hepatitis C and the hepatitis C vaccine and is able to generate highly effective immunity in children And 95% of babies who received this vaccination at birth are very important for infants if the mother has hepatitis C. A combination of hepatitis immuno globulin with urgent doses of hepatitis C vaccine can prevent mother-to-fetal transmission of the virus during childbirth. This was successful in 86-99% of cases[20].

Conclusion: Viral hepatitis in children is treated with some antibiotics determined by the doctor type and dose according to the age and condition of the child and according to the severity of the infection and the period of exposure to infection. Vaccines are usually given to infants and these vaccines are usually given received in three stages: a dose at the age of zero, a dose at the age of one month and a dose at the age of 6 months There is another vaccine that is received in two stages during adolescence between the ages of 11 and 15 years. Those who receive it are 90% protected, whether they are children or adults. These vaccines usually provide protection from of hepatitis B virus for at least 23 years and these vaccines cannot cause hepatitis infection c

Recommendations: When symptoms appear on the child, he should be immediately presented to the doctor for the purpose of diagnosis. Do not share syringes and needles with others. Do not share razors or toothbrushes with anyone. Infected pregnant women inform their doctor of the fact that they are carrying the hepatitis C virus. Perform the necessary tests during pregnancy. In conclusion, people diagnosed with HCV can prevent transmission from them to.

References:

1) Leonardo, N.M. and J. McNeil, 2015. Behcet's disease: Is there geographical variation? A review far from the Silk Road. Int. J. Rheumatol. Vol. 2015. 10.1155/2015/945262.
2) Jennette, J.C., R.J. Falk and P.A. Bacon, 2012. Revised. Proceedings of the International Chapel Hill Consensus Conference Nomenclature of Vasculitides, January 2012, Wiley 1-11.
3) Kobayashi, S. and S. Fujimoto, 2013. Epidemiology of vasculitides: Differences between Japan, Europe and North America. Clin. Exp. Nephrol., 17: 611-614.
4) Arend, W.P., B.A. Michel and D.A. Bloch, 1990. The American College of Rheumatology 1990 criteria for the classification of takayasu arteritis. Arthritis Rheum., 33: 1129-1134.
5) Cheng, B.Q., C.Q. Jia, C.T. Liu, X.F. Lu, N. Zhong *et al*., 2008. Serum high mobility group box chromosomal protein 1 is associated with clinicopathologic features in patients with hepatocellular carcinoma Dig. Dig. Liver Dis., 40: 446-452.
6) Wang, Y., J. Cai, X. Zeng, Y. Chen, W. Yan *et al*., 2015. Downregulation of toll-like receptor 4 induces suppressive effects on hepatitis B virus-related. hepatocellular carcinoma via ERK1/2 signaling. BMC Cancer, Vol. 15. 10.1186/s12885-015-1866-9
7) Vos, T., R.M. Barber, B. Bell, A. Bertozzi-Villa and S. Biryukov *et al*., 2015. Global, regional and national incidence, prevalence and years lived with disability for 301 acute and chronic

diseases and injuries in188 countries, 1990-2013: A systematic analysis for the global burden of disease study 2013. Lancet, 386: 743-800.

8) Wang, A.L., Y.P. Qiao, L.H. Wang, L.W. Fang, F. Wang *et al*., 2015. Integrated prevention of mother-to-child transmission for human immunodeficiency virus, syphilis and hepatitis B virus in China. Bull. World Health Organ., 93: 52-56.

9) Allain, J.P. and O. Opare-Sem, 2016. Screening and diagnosis of HBV in low-income and middle-income countries. Nat. Rev. Gastroenterol. Hepatol., 13: 643-653.

10) Chen, Y., C. Xie, Y. Zhang, Y. Li, S. Ehrhardt *et al*., 2017. Knowledge regarding hepatitis c mother-to-child transmission among healthcare workers in South China. J. Viral Hepat., 25: 561-570.

11) Huang, J., M.L. Guan, J. Balch, E. Wu, H. Rao *et al*., 2016. Survey of hepatitis B knowledge and stigma among chronically infected patients and uninfected persons in Beijing, China. Liver Int., 36: 1595-1603.

12) Kong, Y., L. Wei, J. Hou, Z. Duan, H. Zhuang *et al*., 2017. Demographic and baseline characteristics of patients in China registry of hepatitis C (CR-HEPC). Trials. Vol. 18.

13) Wu, Z., F. Cui, Y. Chen, N. Miao, X. Gong *et al*., 2013. Evaluation of immunization injection safety in China, 2010: Achievements, future sustainability. Vaccine, 31: J43-J48.

14) Cui, J., L. Cao, J. Zheng, L. Cao, P. Yuan and L. Li, 2015. Coverage analysis of national immunization program vaccines reported in China, 2013. Chin. J. VaccImm., 3: 289-294.

15) Nahdema A A Jasim ., Mohamed Abed Al-abass .2023. Isolation and Identification of Copepods Indivuals from Kufa River Molecular Diversity Study. International Journal of Medical Research. 2, 5 (Oct. 2023), 10–24., Available from: http://ijmr.online/index.php/ijmr/article/view/35

16) Liang, X., S. Bi, W. Yang, L. Wang, G. Cui et al., 2009. Epidemiological serosurvey of hepatitis B in Chinadeclining HBV prevalence due to hepatitis C vaccination. Vaccine, 27: 6550-6557.

17) F J Kazem .,E J Kazem . 2023. Immuno Histochemical Analysis Revealed The presence of Hepatitis C in Various Clinical Samples Collected from Al-Najaf Governorate., Journal Alharf .,No. 18., August 2023

18) WHO., 2016. Monitoring and evaluation for viral hepatitis B and C: Recommended indicators and framework. Technical report. Geneva.

19) WHO., 2017. Global hepatitis report 2017. Geneva, Switzerland.

20) WHO., 2018. Fact-sheet: Hepatitis B. Geneva, Switzerland.

21) WHO., 2016. Global health sector strategy on viral hepatitis 2016-2021. Geneva, Switzerland.

22) Institute for Health Metrics and Evaluation, 2018. Global health data results tool. Seattle, Washington State.

23) N.A.A. Jasim, A.D.S. Wadi . (2023). Study of the Biodiversity of Fish in The Kufa River, Pollution and Community Health Effects, BioRes Scientia Publishers. 1(2):1-17. DOI: 10.59657/2993-5776.brs.23.009

24) Liu, J., S. Zhang, Q. Wang, H. Shen, M. Zhang *et al*., 2016. Seroepidemiology of hepatitis B virus infection in 2 million men aged 21-49 years in rural China: A population-based, cross-sectional study. Lancet Infect. Dis., 16: 80-86.

25) Hussain, M. A., Dawod. K. M ., Khether, A. A. (2021). Gene Action, Heterosis and Combining Ability in Maize Hybrids B- Using Line x Tester Analysis. Kufa Journal for Agricultural Sciences, 13(2), 30–40. Retrieved from https://journal.uokufa.edu.iq/index.php/kjas/article/view/3653

26) Park Y, Lee JH, Kim BS, Kim DY, Han KH, Kim HS. New automated hepatitis C virus (HCV) core antigen assay as an alternative to real-time PCR for HCV RNA quantification. *J Clin Microbiol*. 2010;48(6):2253-6. . https://doi.org/10.1128/JCM.01856-09.

27) Cui, F., L. Shen, L. Li, H. Wang, F. Wang *et al*., 2017. Prevention of chronic hepatitis B after 3 decades of escalating vaccination policy, China. Emerg. Infect. Dis., 23: 765-772.