

Case Report on Perinatal Hepatitis C Virus Transmission from Mother to Child in Najaf, Iraq

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ABSTRACT

Background: The hepatitis C virus causes an inflammation of the liver, known as hepatitis C. The virus can cause both acute and chronic hepatitis, ranging in severity from a mild illness to a serious, lifelong illness including liver cirrhosis and cancer.

Case presentation A 32-year-old woman in Najaf, Iraq. The first case of hepatitis C in Najaf is for a woman who transmits the infection to the fetus during pregnancy. She was diagnosed with HCV by doing viral tests before her thyroidectomy in 2016. She was treated with Ledipasvir /sofobuvir (90 mg+400 mg) one dose daily for 12 to 24 weeks because HCV infection can be an opportunistic infection for pregnant women and infected infants.

Conclusion: This report presents an unusual case of HCV infection infant transmission from the mother; the present case is the first one in Najaf.

Keywords: Hepatitis C, Mother, Child, Pregnancy.

Article Information

Received: June 13, 2024; Revised: August 25, 2024; Online: September, 2024

INTRODUCTION

Hepatitis C virus (HCV) infection is a major global health challenge that affects up to 50 million people with only 36% of people diagnosed between 2015 and 2020⁽¹⁾. Chronic hepatitis C remains a significant global health burden affecting a substantial number of individuals worldwide⁽²⁾. Based on the World Health Organization (WHO) estimates, there were about 50 million people living with chronic hepatitis C by the year 2023 worldwide, with an estimated 1 million new infections each year⁽³⁾. New infections continue to increase primarily in association with injection drug use; nearly 70 000 estimated cases of acute hepatitis C occurred in 2021 alone⁽⁴⁾. More than half of new infections progress to chronic infection⁽⁵⁾.

Acute HCV infection develops in the first six months after the virus exposure and is usually asymptomatic. When symptoms occur, they are not specific and involve jaundice, anorexia, nausea, and abdominal pain⁽⁶⁾. Although 15–45% of the patients usually clear the virus in the first six months, those who do not will develop chronic infection. After 20 years of infection, the patients with chronic

disease have a high risk for cirrhosis and hepatocellular carcinoma⁽⁷⁾. Transmission of HCV is commonest mode through blood and blood products⁽⁸⁾, sexual contact⁽⁹⁾, and infected blood contacts mucosal surfaces, such as the eyes ⁽¹⁰⁾, directly related to the volume of blood involved in transmission and the nature of exposure to the virus inoculum ⁽¹¹⁾, blood transfusions of contaminated blood ⁽¹²⁾,

household, occupational, healthcare settings where strict infection control practices may not be adhered to consistently⁽¹³⁾, needlestick injuries has been reported at a rate of 1% to 2%⁽¹⁴⁾, Non-medical percutaneous exposures, such as tattooing, body piercing, and wet cupping (hijama)⁽¹⁵⁾, an infected mother to her infant is less common, occurring in about 4% to 8% of cases⁽¹⁶⁾. Nowadays, HCV is the main indication for adult liver transplantation⁽¹⁷⁾. In this report, describes a rare case of a young female patient presenting with HCV. Proving the transmission of hepatitis C virus from mother to fetus after birth through hepatitis C tests.

CASE DESCRIPTION

A 32 -year-old woman in Najaf-Iraq who was referred to the hospital because of Thyroidectomy surgery in 2016. She had no significant medical history. Virus tests were done before the operation. Virus tests were done before the operation. The results of the serum viral examination showed that she was infected with the hepatitis C virus. The thyroid gland was removed with all precautions and protection from infection from the virus. After recovering from the thyroid gland lift surgery, the patient visited the gastroenterologist at the Digestive System and Liver Teaching Hospital. After reviewing all the tests, she was given treatment and adhered to the prescribed doses, and had regular monthly check-ups. For treatment of HCV infection for woman, the regimen is given with Ledipasvir/ sofosbuvir (daily one dose 90/400 mg for 12 weeks). After taken course of treatment and she done tests of HCV IgG ELISA and PCR test that appeared clear the hepatitis C virus from your body permanently.

In 2023 at the end of August month, she become pregnant, Before the cesarean delivery in June 2024, virus tests were done, and she was found that antibody levels for hepatitis C virus. After the birth of child, a hepatitis C test was

performed on the third day after birth for mother and infant, and the result high HCV viral load in serum by ELISA for mother and infant. In 2024 of August month repeated the HCV for mother and child , the results were for mother is high level of HCV and baby HCV moderate level. Since four months ago, after the birth of the child, liver function tests like the Alkaline Phosphatase Test (ALP), and Alanine Transaminase Test (ALT), Aspartate Transaminase Test (AST) were performed on the child and mother, and the results were very high.

DISCUSSION

Global, there are estimated 58 million people were infected with hepatitis C in 2019. Approximately 290,000 deaths from the virus, mainly from liver cancer and cirrhosis attributed to hepatitis C, also occurred in 2019⁽¹⁸⁾. which 14.9 million HCV infections were in women aged 15–49 years⁽¹⁹⁾. Worldwide, up to 8% of pregnant women are infected with hepatitis C virus (HCV)⁽²⁰⁾. Hepatitis C has been increasing among pregnant women in recent years⁽²¹⁾. A nationwide study from 2009 to 2017 found that hepatitis C virus (HCV) infections occurred in 4.7 cases per 1000 live births in 2017, a significant increase from 1.8 cases per 1000 live births in 2009⁽²²⁾. Between 2016 and 2021, the number of pregnant women with HCV infection ranged from a low of 16,588 in 2016 to a high of 18,927 in 2018⁽²³⁾. Pregnancy is considered a state of relative immunodeficiency⁽²⁴⁾, especially T-cell mediated immunity⁽²⁵⁾, with a shift in the Th1/Th2 balance toward the Th2 response, and expansion of regulatory T-cells⁽²⁶⁾, to safeguard against rejection of the newly developing embryo by the maternal immune system⁽²⁷⁾.

Vertical transmission refers to viral transmission from mother to infant during

pregnancy, delivery, or the neonatal period. At present, vertical transmission of HCV is the leading cause of HCV infection in children⁽²⁸⁾. Mother-to-child transmission of hepatitis C occurs in fewer than 10% of pregnancies⁽²⁹⁾. Transmission occurs during pregnancy both during gestation and at delivery⁽³⁰⁾. A long labor is associated with a greater risk of transmission⁽³¹⁾. In the current report, the HCV virus was transmitted to the fetus during delivery. Globally, the previous studies reported transmission of hepatitis C virus from mother to child^(32, 33,34, 35,36,37), and general HCV infection prevalence in pregnant females in the world is around 1–8%. Perinatal transmission occurs from infected mothers to their offspring in 3–10% of cases⁽³⁸⁾, with 10,000–60,000 new pediatric perinatal infections per year in developed countries⁽³⁹⁾.

Vertical transmission of HCV is thought to be a risk only for women with detectable HCV RNA during pregnancy. The meta-analysis by Benova *et al* 24 included 15 studies with a total of 473 children born to women who were HCV-antibody-positive but RNA-negative. Only 1 of the 473 children was diagnosed with vertically acquired HCV infection⁽⁴⁰⁾. Several studies have shown that higher viral loads correlate with an increased risk of transmission⁽⁴¹⁾. Globally the prevalence of HCV in pregnant women that recent study reported a rising HCV prevalence among pregnant women⁽²⁴⁾. Females in the world are around 1–8%. Perinatal transmission occurs from infected mothers to their offspring in 3–10% of cases⁽⁴³⁾. HCV prevalence continues to rise among women of childbearing age^(44,45). The combined global seroprevalence of HCV in pregnant women was 2.6%⁽⁴⁶⁾. Micro elimination efforts among pregnant mothers with HCV have been hampered by the COVID-19 pandemic, as shown in our previous studies⁽⁴⁷⁾. The prevalence of hepatitis C infections among pregnant women was found to 6.4% in Pakistan⁽⁴⁸⁾.

HCV prevalence among pregnant women in Arab countries, with very wide variability in prevalence rate from one country to another, 0.4–23%^(49,50). HCV prevalence among pregnant women in African countries. A systematic review and meta-analysis study published in 2015, found that the overall HCV prevalence among pregnant women in antenatal clinics was 3% and was 2% in the Central African region⁽⁵¹⁾. Current study reports the HCV prevalence of 1.33% for anti-HCV antibodies and 0.63% for HCV RNA among pregnant women in the south of Iran⁽⁵²⁾. In 2018, a metanalysis was conducted in Iran investigating the prevalence of HCV in different populations; six studies were included. The prevalence of HCV infection in pregnant women in Iran ranged from 0.0% to 0.8%, with a median of 0.3%⁽⁵³⁾. In another study conducted in Turkey, the prevalence of HCV-Ab positivity in pregnant women was 0.1%⁽⁵⁴⁾.

Previous studies conducted in Iraq reported the prevalence of HCV in pregnant woman in Samara community. The overall Anti-HCV Ab Seroprevalence was 0.54%⁽⁵⁵⁾. HCV prevalence in pregnant women was 0.04%, much lower in Duhok city. Kurdistan Region⁽⁵⁶⁾. The prevalence of anti-HCV was low 0.4% in 18 Iraqi governorates⁽⁵⁷⁾. Prevalence of HCV infection was 3.21%, significantly increases with increased maternal age, woman at age ≥ 30 year are considered as a risk group for HCV infection⁽⁵⁸⁾. The high prevalence (3.2%) of anti-HCV among Iraqi pregnant women in Baghdad⁽⁵⁹⁾.

CONCLUSION

We encountered a rare case of HCV in infant transmission from mother during delivery. The prevalence of HCV infection is high among Iraqi pregnant women.

RECOMMENDATION

HCV screening of pregnant women is recommended particularly for old age mothers. Recommend antibody based testing in all HCV-exposed children. Continuous screening is crucial to control the infection and halt vertical transmission.

Acknowledgment

I thank the pregnant woman and child for agreeing to participate in this study, as well as the Ministry of Health, Najaf Health Directorate, Public Health Department, Public Health Laboratory, and Virology Unit.

Conflict of Interests: The authors declared no conflict of interest.

Availability of data and materials: Not applicable.

Ethical Clearance: The study was conducted in accordance with the ethical principles that have their origin in the

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