

Content available at: <https://www.ipinnovative.com/open-access-journals>

IP International Journal of Medical Microbiology and Tropical Diseases

Journal homepage: <https://www.ijmmttd.org/>

## Original Research Article

## Study of viral markers (human immunodeficiency virus, HBsAg and anti-HCV) among pregnant women attending the antenatal clinic

Lalman<sup>1</sup>, Sudhir Singh<sup>1,\*</sup>, Rehana Najam<sup>2</sup>, Umar Farooq<sup>1</sup>, Shweta R Sharma<sup>1</sup>, Vasundhara Sharma<sup>1</sup>, Imran Ahamad<sup>1</sup>

<sup>1</sup>Dept. of Microbiology, Teerthanker Mahaveer Medical College & Research Centre, Bagadpur, Uttar Pradesh, India

<sup>2</sup>Dept. of Obstetrics and Gynaecology, Teerthanker Mahaveer Medical College & Research Centre, Bagadpur, Uttar Pradesh, India



## ARTICLE INFO

## Article history:

Received 03-08-2021

Accepted 17-08-2021

Available online 18-11-2021

## Keywords:

HIV

HBsAg and anti HCV

Pregnant women

## ABSTRACT

**Introduction:** It has been recognized that population-based surveys are needed to assess the prevalence of hepatitis C virus, hepatitis B virus and HIV infection. Pregnant women can be considered as outpost populations because they are relatively unselected populations and their prevalence data may be extended to general population.

**Aim/Objective:** Study of viral markers (Human immunodeficiency virus, HBsAg and antiHCV among pregnant woman attending the antenatal clinic. Determination of HIV, HBsAg and HCV in the pregnant females.

**Result:** In this age wise distribution of HCV positive cases, five cases were positive in 17-21, age group of 22-26 twelve patients were positive, age group of 27-31 eleven patients were positive, age group of 32-36 four patients were positive and three were positive in the age above 36 years. In table number two, 7 were positive for HBsAg, 35 were positive for HCV and no one was for HIV.

**Conclusion:** In our study, pregnant women had a higher HCV infection rate. Occurrence of HBsAg infection was low in expectant ladies. In our area, people were very careful because they don't want to spread HIV in their area. The public has complied with HIV/AIDS regulations. They always used condoms and never shared needles. Hence the mother could not spread HIV to the child. In order to understand the reasons and inferences of these findings, and provide more guidance, other research is needed.

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: [reprint@ipinnovative.com](mailto:reprint@ipinnovative.com)

### 1. Introduction

Viral hepatitis B during pregnancy is associated with a high risk of maternal complications, including premature delivery, placental secretions, and premature rupture of membranes, vaginal bleeding, gestational diabetes and mortality. The prevalence of hepatitis B virus infection varies greatly in different regions of the world. It is highly prevalent in sub-Saharan Africa, Asia, the Pacific Basin, parts of the Middle East, and the Amazon Basin. Data on

the prevalence of HBV among expectant ladies is scarce.<sup>1</sup>

Family of Hepadnaviridae includes viral Hepatitis B. It is a deoxyribonucleic acid virus having an antigen at its core which is enveloped by a covering containing antigen. Importance of HBV infection during pregnancy comes from its potential for vertical transmission. Third world nations, the route by which it is usually transmitted is: mothers with HBV in their newborns usually infect their babies at birth or shortly after birth. If an acute maternal infection occurs in the first trimester of pregnancy, Ten percent of offspring of ladies with acutely occurring infection by viral Hepatitis B in the initial 3 months of getting pregnant will be surface

\* Corresponding author.

E-mail address: [lalmanmicro@gmail.com](mailto:lalmanmicro@gmail.com) (S. Singh).

Ag of Hepatitis B positive without preventive treatment.<sup>2</sup>

The Hepatitis C virus (HCV) is transmitted through transdermal exposure to infected blood. Other ways include mother-to-child transmission (MTCT) and sharing contaminated equipment used for non-injecting drugs. Recent popular practices, such as piercings, tattoos or manicures in girls of childbearing age, may increase the percentage of pregnant women infected. Using unsterilized needles or sharing objects that may contain the fewest traces of blood can cause ladies to have infections. According to estimates by the CDC of the US, approximately 23 thousand to 46 thousand kids in the US have infection as a result of viral Hepatitis.<sup>3</sup>

Although population-level studies in the pre-antiretroviral treatment era have shown that the decline in fertility caused by late-stage HIV leads to a decline in fertility, an increase in mortality and a decrease in fascination regarding sex, but the decline in fertility caused by HIV, but some research's further show that infection due to HIV can cause increment in chances of getting pregnant as the result of decrement in the action duration.<sup>4</sup>

## 2. Materials and Methods

Total of 246 patients showing infected with HIV, HBsAg and anti-HCV infection based on the pregnant women diagnosis from outside patients Department of Virology December 2019 to December 2020, were send to Virology Department of Microbiology, TMMC&RC Moradabad, UP. All pregnant women were included in this study.

### 2.1. Selection of patient

Selection of patient will be on the basis of inclusion and exclusion criteria.

### 2.2. Inclusion criteria

All pregnant female attending ANC Clinic.

### 2.3. Exclusion criteria

1. Already diagnosed cases of human immunodeficiency virus, hepatitis B surface antigen and hepatitis C virus.
2. Patients who deny consent.

### 2.4. Sample processing

Samples obtained for the study from the obstetrics and gynecology department of the hospital among the antenatal care community. The ANC community sample was collected between 28 November 2019 and December 2020. Data on a context variable, including age, address of residence and marital status were collected. Enquiry age at which they had first sexual contact were involved in the section on sexual conduct.<sup>5</sup>

### 2.5. Separation of serum

The serum was isolated from the blood sample for 5 minutes by centrifuging it at 3000 rpm.

### 2.6. Serological analysis

The collected serum was screened for HIV antibodies using the Human immunodeficiency virus Tri-Dot Rapid-card test. The quick fast card, HEPACARD, detected Hepatitis B surface Antigen. The entire test was directed in compliance with the instructions of the manufacturer with enough control. The serum was evaluated using the normal prescribed protocol for HCV antibodies, rapid card checking as HCV TRI-DOT. HUMAN IMMUNODEFICIENCY VIRUS TRI-DOT Human immunodeficiency virus TRI-DOT was established and advanced using the gp41, gp120 & gp36 C terminal, which represents the immune-dominant section of HIV-1 and HIV-2 envelope gene structure.

Differential identification of immune-globulins of HIV 1 and HIV 2 by HIV-2 Immuno-essay antigens in human serum plasma is employed. It is quick, responsive and trustworthy immunoassay. Procedure is a test for anti-Human immunodeficiency virus screening.<sup>6</sup>

## 3. Result

**Table 1:** Total number of positive cases in this study

S.No.	Total No. of patients	Total reactive patients	Total non-reactive patients
1.	246	42	204

**Table 2:** Total HBsAg, HIV and HCV positive cases.

S.No.	Tests	No. of positive patients	Percentage (%)
1.	HBsAg	7	2.8%
2.	HIV	0	0%
3.	HCV	35	14.2%
Total		42	17%

In table number two, 7 (2.8%) were positive for HBsAg, 35 (14.2%) were positive for HCV and no one was for HIV. Table 2

In this age wise distribution of HBsAg positive cases, in age group of 17-21 two patients were positive, in age group of 22-26 one patient was positive, age group of 27-31 three patients were positive, age group of 32-36 one patient was positive and no one was positive in the age above 36 years. Table 3

In this age wise distribution of HCV positive cases, five cases were positive in 17-21, age group of 22-26 twelve patients were positive, age group of 27-31 eleven patients

**Table 3:** Age wise distribution of HBsAg positive cases

Infection	HBsAg
Age	Reactive
17-21	02
22-26	01
27-31	03
32-36	01
>36	00
Total	07

**Table 4:** Age wise distribution of HCV positive cases

Infection	HCV
Age	Reactive
17-21	5
22-26	12
27-31	11
32-36	4
>36	3
Total	35

were positive, age group of 32-36 four patients were positive and three were positive in the age above 36 years. Table 4

#### 4. Discussion

The results inform that pregnant woman attending which ANC clinic, from Obs-Gyn OPD, harbor blood-borne, MTCT, needle inject, and STD viral infections like HIV, HBV, and HCV, which have otherwise remained diagnosed in the presence of screening.

Generality of these viruses globally vary a lot; hence, the prevalence in varied regions of the country varies wide. Sample size of my study was 246 ANC, in which samples; thirty-five samples had infection as a result of Hepatitis C virus, infection in seven expectant ladies had of Hepatitis B surface antigen. However, there have been not found any sample reactive for Human immunodeficiency virus. There square measure 204 samples were non-reactive in my study. In my research infection has done by Hepatitis B surface antigen in explanation ladies, Hepatitis B surface antigen three percent, HCV fourteen percent in pregnant ladies that came within the hospital for ante partum care service.<sup>6</sup>

There was Hepatitis surface antigen in sera for identification of viral infection, there were observed 3% Hepatitis B surface antigen. Distribution of Hepatitis B surface antigen in my result age wise, observations were found greater in young population 17-29 (5 cases), 1 infection in 30-40 old and 1 infection in 40-60 old. Among 246 sera collection, observation in 7 cases had Hepatitis B surface antigen.

Here, 2.8% generality of Hepatitis B surface antigen was seen in prenatal ladies.

This observation was higher in comparison to data provided in the study submitted by Odom JD, Mbah R, Rembert NJ, Tancho S, Evan GE, Nah C et al.(10.2%)<sup>7</sup>

while research of Olokoba AB and his colleague. (8.2%).<sup>8</sup>

Result observed is comparable to Khokhar N and his co-researcher, 3.03%)<sup>3</sup> and Krunal Mehta et al.,2.9%).<sup>7</sup> 2.8% generality was observed due to Hepatitis B surface antigen in prenatal ladies, less in comparison to Reddy. S. (1.42%)<sup>9</sup> Our study differs from that of Parveen Malhotra P. conducted in 2016),<sup>10</sup> wherein reactive cases of liver inflammation seen were 4.4 percent, 0.36 percent, 11.8 percent and 9.7 percent. High HBsAg prevalence is shown in such studies as Bayo P and his colleagues. Prevalence of HBsAg infection was higher due to minimum public unhealthiness. Therefore, targeted screening is sufficient as a result of their square measure found several facilities in medical field.<sup>11</sup>

#### 5. Conclusion

In our study, pregnant women had a higher HCV infection rate. Occurrence of HBsAg infection was low in expectant ladies. In our area, people were very careful because they don't want to spread HIV in their area. The public has complied with HIV/AIDS regulations. They always used condoms and never shared needles. Hence the mother could not spread HIV to the child. In order to understand the reasons and inferences of these findings, and provide more guidance, other research is needed.

#### 6. Source of Funding

The authors declare that we have received no financial support for the research, authorship, and/or publication of this article.

#### 7. Conflicts of Interest

The authors declare no potential conflict of interest with respect to research, authorship, and/or publication of this article.

#### References

1. Eke AC, Eke UA, Cl O, Ezebielu IU, Ogbuagu C. Prevalence correlates and pattern of hepatitis B surface antigen in a low resource setting. *Viral J*. 2011;8:12. doi:10.1186/1743-422X-8-12.
2. Ijoema UN, Nwokediuko SC, Onyemekwe B. Low prevalence of hepatitis B, E antigen asymptomatic adult subjects with hepatitis B virus infection Enugu, Some East Nigeria. *Internet J gastroenterol*;p. 0–0.
3. Khokhar N, Jethwa D, Lunagaria R, Panchal N, Badrakiya S, Badrakiya G, et al. Seroprevalence of Hepatitis b, Hepatitis C, Syphilis and HIV in pregnant women in a tertiary care hospital, Gujrat India. *Int J Curr Micro App Sci*. 2015;4(9):188–94.
4. Shaikh F, Qaiser H, Naqvi H, Jilani K, Allah R, Memon D, et al. Prevalence and risk factors for hepatitis C virus during pregnancy. *Gomal J Med Sci*. 2009;7:86–8.
5. Bahat PY, Turan G, Ozgor BY, Cakmak KB. Comparison of hepatitis B, hepatitis C and HIV seropositivity of Syrian and Turkish pregnant women. *Turk J Obstet Gynecol*. 2010;16(2):95–7.
6. Schauder B, Blocker H, Frank, Carthly JEGM. *Expression of Cloned Genes in E coli Gene*. 1987;40:183–90.

7. Anathanarayan & Paniker's textbook of Microbiology. In: 9th Edn.; 2015. p. 548–9.
8. Ajaka ZL, Ly TD, Chaix ML, Ingrand D, Saragosti S, Couroucé AM, et al. HIV-1/HIV-2 seronegativity in HIV-1 subtype O infected patients. *Lancet*. 1994;343(8910):1393–4. doi:10.1016/s0140-6736(94)92524-0.
9. Oti BV, Pennap GR, Nigari HR. HBsAg and Anti-HCV prevalence among the pregnant women Accessing Antenatal care in tertiary Healthcare Facility in central Nigeria. *Hepatol Pancreat Sci*. 2018;2(1):1–4. doi:10.4172/2573-4563.1000110.
10. Ijoema UN, Nwokediuko SC, Onyemekwe B. Low Prevalence Of Hepatitis B 'E' Antigen In Asymptomatic Adult Subjects With Hepatitis B Virus Infection In Enugu, South East Nigeria. *Internet J Gastroenterol*. 2009;10(1):1–5.
11. Smith BB, Johnson KS. S: single-step Purification of Polypeptides W Expressed in E. coli fusion with Gluthathione S-transferase. *Gene*. 1988;52:279–83.

**Sudhir Singh**, Professor

**Rehana Najam**, Professor and HOD

**Umar Farooq**, Professor and HOD

**Shweta R Sharma**, Associate Professor

**Vasundhara Sharma**, Associate Professor

**Imran Ahamad**, Assistant Professor

**Cite this article:** Lalman, Singh S, Najam R, Farooq U, Sharma SR, Sharma V, Ahamad I. Study of viral markers (human immunodeficiency virus, HBsAg and anti-HCV) among pregnant women attending the antenatal clinic. *IP Int J Med Microbiol Trop Dis* 2021;7(4):242-245.

## Author biography

**Lalman**, Post Graduate Student  <https://orcid.org/0000-0002-5345-129X>