

Seropositivity of HIV, HBV and Syphilis in Antenatal Females Visiting Civil HospitalSuprabha*, Vadsmiyamimesh G**, Solanki Hasumati***, Vegadmahendra M****, Priyadarsini*****,
Vagadia Khushbu*****

*Resident, **Associate Professor, ***Assistant Professor, ****Professor And Head, ***** Resident

Abstracts: Background & Objectives: This study was conducted to assess the extent of seropositivity of HIV, HBV and Syphilis in pregnant women and the need for antenatal screening. The primary aim of screening of these diseases is to minimise the mother to child transmission since they are transmitted vertically. While HIV and HBV infection can be transmitted during any stage of gestation, the risk of transmission is maximum during delivery. Transplacental spread of Syphilis may occur at any stage of pregnancy, but foetal damage occurs only after fourth month of gestation. Early diagnosis and prompt treatment can significantly reduce the associated morbidity and mortality. **Methods:** Samples were tested for anti-HIV antibodies and HBsAg by using rapid and ELISA. Syphilis was tested by RPR and confirmed by TPHA. **Results:** Out of 2921 antenatal outpatients studied over a period of 5 months the seropositivity of HIV was 10%, HBV was 29% and Syphilis 8%. **Interpretation & Conclusion:** The screening programme will help in detecting HIV, HBV and Syphilis in pregnant females. This will aid the clinician to reduce the rate of transmission of these diseases from mother to child and also treat the antenatal patients effectively. [Suprabha NJIRM 2017; 8(2):12-14]

Key Words: HBV, HIV, Seroprevalence, Syphilis**Author for Correspondence:** Suprabha, Department Of Microbiology, B.J Medical College And Civil Hospital, Ahmedabad 380016, E- Mail: suprabha2802@gmail.com, M: 9939616616

Introduction: Sexually transmitted diseases and HIV/AIDS are a major public health concern owing to both their prevalence and propensity to affect offspring through vertical transmission.

The largest epidemic facing mankind today is HIV infection. It can be transmitted from an infected mother to her foetus during pregnancy, during delivery or by breast feeding. This is a highly potent form of HIV transmission in developing countries, where the proportion of infected women to infected men is 1:1.

Hepatitis B virus is the most important causative agent of transfusion-associated hepatitis. Humans are the only reservoir of Hepatitis B virus (HBV). The significance of HBV infection during pregnancy derives through its potential to be transmitted vertically.

According to Okada et al., 85% of neonatal HBV infections are caused due to intrapartum exposure to infectious blood and vaginal secretion, and the remaining 15% are caused by haematogenous transplacental viral spread.¹

Transmission of *Treponema pallidum* from a syphilitic woman to her foetus through the placenta may occur at any stage of pregnancy, but the lesions of congenital Syphilis generally have their onset after the fourth month of gestation, when foetal immunologic competence begins to develop. This timing suggests that the pathogenesis of congenital Syphilis depends

on the immune response of the host rather than on a direct toxic effect of *Treponema pallidum*. The risk of infection of the foetus during untreated early maternal Syphilis is estimated to be 75% to 95%, decreasing to approximately 35% for maternal Syphilis of two years' duration.²

Method: This study was conducted to determine prevalence of antibodies to HIV, surface antigen (HBsAg) of HBV and antibodies to *Treponema pallidum* among patients attending antenatal OPD at Civil hospital, Ahmedabad. Serum samples from 2921 patients were collected between June 2016 to October 2016. These samples were tested for HIV, HBV and Syphilis. Approximately five-ml blood sample was collected using a sterile plain vacutainer, and the serum was separated by centrifugation into sterile serum storage vials. Needles were destroyed using a needle destroyer and then discarded in a sharps box. Other contaminated materials were discarded in 1% hypochlorite solution.

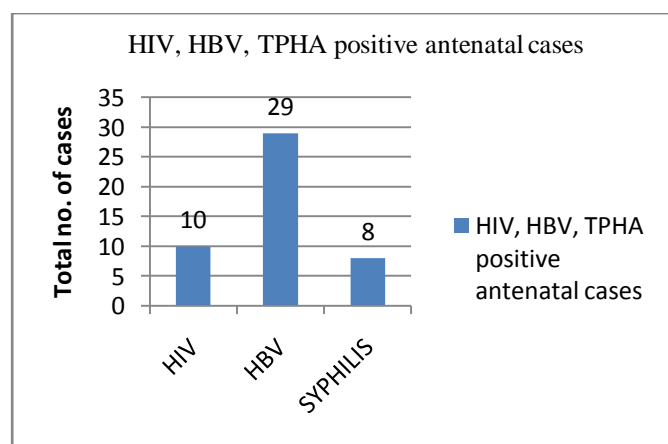
Laboratory test for HBsAg: The serum samples were checked for the presence of hepatitis B surface antigen (HBsAg) using HEPA card. It is a qualitative test based on immunochromatography sandwich principle. The method uses monoclonal antibody conjugated to colloidal gold and polyclonal antibodies immobilised on a nitrocellulose strip in a thin line. The positive samples were then confirmed by ELISA ErbaLisa (M/S Transasia Bio-Medicals Ltd, Daman, India).

Laboratory diagnosis for Syphilis: Serum samples from all patients were tested for the presence of treponemal antibodies using RPR carbon antigen (M/S Beackon Diagnostics Pvt. Ltd, Navsari, India) based on the principle of passive agglutination. Positive samples were confirmed by *Treponema pallidum* haemagglutination assay (M/S Omega diagnostics Ltd., Scotland, UK).

Laboratory diagnosis for HIV: Antibodies to HIV (anti-HIV) were determined by dot immunoassay CombAids HIV 1 + 2(M/S SpanDiagnostics Ltd., Surat, India) and positive results were confirmed by the test which employs lateral flow immunochromatographic type assay line immunoassay SDBioline(M/S Alere Media Pvt.Ltd., Gurgaon, India) and the immunoconcentration method AIDSCAN (M/S Bhat Biotech Pvt. Ltd, Bangalore).

Result: The study was conducted on 2921 samples from antenatal patients visiting antenatal clinic at Civil hospital OPD during a 5 month period from June 2016 to October 2016. This study was done in Department of Microbiology, B.J. Medical College, Ahmedabad.

Out of 2921 antenatal women, 10 were HIV positive giving a seroprevalence rate of 0.34% (10/2921), 29 were HBV positive resulting in an HBV seroprevalence of 0.99% (29/2921), and 8 females tested positive for RPR and *Treponema pallidum* hemoagglutination assay with a seroprevalence rate of 0.27% (8/2921), as shown in Fig 1.



Discussion: The overall seroprevalence of HIV, 0.34% among antenatal women visiting Civil hospital OPD, Ahmedabad recorded in this study is higher than the national HIV prevalence of 0.29%³ among pregnant women but lower than 0.56% as reported from the

state of Gujarat.³ The high seroprevalence in this study as compared to the national prevalence could be attributed to the fact that this study has been conducted in a tertiary care hospital. Although our study population is not representative of the whole of India due to limitations to sample size in a single hospital study, the data illustrates the spread of HIV in pregnant mothers. This will directly lead to high perinatal transmission and a reciprocal increase in pediatric AIDS cases. Therefore, it may be recommended that even though the curative treatment for HIV is not available at present, we can minimize, if not prevent, pediatric HIV infection by early screening of pregnant mothers for HIV followed by perinatal short-term anti-retroviral therapy, safe delivery practices, and modified infant feeding.⁴

As shown in our study, HBsAg prevalence rate was 0.99% among antenatal women, which is lower than the national seroprevalence rate of 3- 4.2 %⁵ and rates reported by Gill et al. (5%) (Gill et al., 1995)⁶ and Mittal et al. (6.3%) (Mittal et al., 1996)⁷. Seroprevalence in this study is low as compared to the national seroprevalence. This difference may be because of the type of population studied, different geographical regions, genetic factors and socioeconomic status. The strong possibility of vertical transmission shows the importance in diagnosing the acute or chronic HBV infection in pregnant women and justifies mandatory ante partum serum HBsAg screening. Screening of HBsAg will reveal previously unsuspected chronic HBV infection in young, otherwise healthy, individuals. This screening has the added benefit of making it possible to refer such patients for appropriate antiviral therapy before significant liver damage and associated functional insufficiency are developed.

The prevalence rate of Syphilis in our study (0.27%) was low compared to the rate reported by Gupta et al. (2003) (1.47%)⁸ and Kebede et al. (2.9%).⁹ In India, available information indicates that the prevalence of maternal Syphilis has remained at around 1.5% between 2003 and 2007.¹⁰

The low prevalence can be attributed to the successful implementation of national strategy by Ministry of Health and Family Welfare to eliminate parent to child transmission of Syphilis.

Conclusion: HIV, HBV, and SYPHILIS infection are a major global health problem necessitating a high priority in their prevention and control. This data can help health professionals to efficiently treat antenatal patients. The data also reinforces the need for effective prevention programs, which could lead to a reduction in the prevalence of HIV, HBV and Syphilis. There is a need for effective health education on behavioural change as well as the inclusion of HBV immunization for women of reproductive age to reduce the risk of spread to neonates through mother to child transmission.

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