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Opinion

If Hepatitis B Vertical Transmission Completely Preventable

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Hepatitis B virus (HBV) infection has approximately 350 million chronic carriers worldwide and significant percentage of which will progress into End stage liver disease in due course of time. Around half of them have acquired this infection through mother-to-child transmission (MTCT) and in 90% of cases it become chronic. In mothers who are HBsAg positive but HbeAg negative, chances of MTCT is 10 - 30% but HbeAg positivity increases chances of transmission to 70% to 90%. The MTCT occurs transplacental, natal or post-natal transmission and it can be prevented at all of these three stages. The vertical transmission is defined as hepatitis B surface antigen (HBsAg) or of HBV-DNA positivity at one year of age in an infant born to hepatitis B infected mother. This Vertical transmission is significantly responsible for total pool of HBV infection in Asia. The risk of vertical transmission of HBV is predominantly dependent upon maternal HBV viral load and HbeAg status. The presence HBsAg, HBV DNA, antibody against hepatitis e antigen or hepatitis b core antigen can be detected transiently after birth in new born but it does not imply vertical transmission. There are very limited studies on vertical transmission of HBV during pregnancy. The risk of vertical transmission can be prevented by timely intervention of antiviral treatment at 28 weeks of pregnancy, if viral load is high and/or Hepatitis e antigen is positive, followed by HBIG and zero dose hepatitis B vaccination to new born within twenty four hours of birth and complete course of HBV vaccine. These newborns are tested for vertical transmission once they reach one year of age.

We have also followed 400 hepatitis B pregnant patients over a period of four years at Department of Medical Gastroenterology in collaboration with Obstetrics and Gynaecology, and Microbiology Department, PGIMS, Rohtak. All the antenatal women who tested positive for HbsAg and HBV DNA quantitative were enrolled in the study after an informed consent. All the women were followed during pregnancy, delivery, post partum, breast feeding and also later on. All newborn were followed till one year of age. At their first antenatal visit, sample was taken for HBV DNA levels, HbeAg status and activity of liver. Women who were chronic carriers and with high HBV DNA load (> 2 x 10^7 I.U.) or HbeAg positive or both were treated with tablet Tenofovir 300 mg once a day from 28 weeks of gestation. All the newborns were given zero dose of HBV vaccine and HBIG (0.5 ml) intramuscularly within twenty four hours of birth and next three doses of HBV at 6, 10 and14 weeks of life. All the newborns were followed till 12 months of age and HbsAg was done at one year of age. In the study pool, majority belonged to rural areas (72.22%) and were in 21 - 30 yrs of age group (75.79%), sixty (23.80%) were found to be having high HBV DNA and/or HbeAg positivity, hence were started on Tenofovir from 28 weeks of pregnancy. Out of sixty patients who were started on antiviral treatment, 15 patients had raised transaminases, in addition to high viral load and HbeAg positivity and would have merit treatment, even if they were non pregnant. In rest 45 patients, they were started on oral antiviral treatment with sole purpose of preventing vertical transmission because their transaminases were normal but HBV DNA were high along with HbeAg positivity in majority of cases i.e. they were in immunotolerant phase. All the newborns were given zero dose of HBV vaccine and HBIG (0.5 ml) intramuscularly within twenty four hours of birth and next three doses of HBV in next six months. All the newborns were followed till 12 months of age and HbsAg was done at one year of age. Till date, data pertaining to 100 neonate have reached one year of age and got tested for HbsAg and all were found to be HbsAg negative, thus signifying zero percent vertical transmission after adopting above method of oral antiviral treatment wherever indicated and mandatory use of HBIG 0.5 ml intramuscular and zero dose hepatitis B vaccination to newborn within 24 hours of birth, followed strictly by completion of full course of hepatitis B vaccination. Thus, timely intervention at different stage of pregnancy in HbsAg positive mother is not only helpful in preventing vertical transmission but also decreases morbidity and mortality in both mother and newborn. Hence every pregnant mother should be screened for hepatitis B and if indicated then antiviral treatment should be started at 28 weeks of pregnancy, followed by mandatory HBIG, complete course of hepatitis B vaccination,

including zero dose vaccination to new born and thus vertical transmission can be completely prevented. There is no indication of doing elective caesarean section for preventing vertical transmission. The breast feeding should be allowed as it has no added risk of transmission to newborn from mother.

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