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Necessity for Hepatitis B Surface Antigen Screening in Pregnant Females in Iran

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The hepatitis B virus (HBV), a type of hepatitis viruses, can lead to morbidity and mortality in the world (1). Despite the progress occurred in antiretroviral therapy, the number of people who die due to chronic HBV infection or the number of cancer cases associated with hepatitis B are increasing (1). It is estimated that about 2 billion people worldwide have serologic evidence of hepatitis B, of which 240 million are chronic carriers and one of them die due to cirrhosis or hepatocellular carcinoma every year (2).

In Iran, seroprevalence of hepatitis B surface antigen (HBsAg) changed from 2.5% - 7% in the 1980s to 1.07% - 5% in the 1990s and to 1% - 2% in the 2000s (3). According to the results of the current systematic review study, the prevalence of HBV infection was estimated 3% (95% confidence interval (CI): 2.2% - 3.8%) in Iranian males and 1.7% (95% CI: 1.2% - 2.3%) in Iranian females (3). The World Health Organization (WHO) classified Iran within the low-intermediate prevalence areas (4). In such countries, some health interventions such as infant and adolescent vaccination and injection of immunoglobulin (HBIG) are very effective to prevent transmission (5). In Iran, national infant vaccination program started in 1993. This mass program could decrease the HBV prevalence and the rate of infection after a while. Despite the good coverage of HBV vaccination, the potential transmission risk of infection from mother to child remains unknown (6), and HBV infection is still the main cause of chronic liver disease in Iran (4). The exact prevalence rate of HBV in Iranian pregnant females is not known well (7, 8), but different studies estimated it 0.35% - 6.5% (8). The result of latest studies in Iran showed that overall prevalence of HBsAg was 1.2%. This prevalence can be affected by age. It is estimated that national and adolescent vaccination could reduce the prevalence in the age group of less than 22 years and 22 - 27 years to less than 0.2% and 1%, respectively.

Hepatitis B screening in Iranian pregnant females is

not necessary; only the pregnant females with the history of high risk behaviors are referred for HIV and HBsAg tests in their first visit of antenatal care (6).

According to the pregnancy rate, the number of HBV carriers in each age group from 2015 to 2016 in Iran was as follow: 404 cases in less than 22 years, 4052 cases in 22 - 27 years and 9589 cases in above 27 years age groups. Therefore, the total number of carriers was 14045. It is right that HBV is not transmitted through placenta, but the infection occurs during the delivery process and the horizontal transmission of HBV to the children in the first years of life is important as well (7). Adibi et al. showed that national vaccination decreased the rate of HBV infection in mothers with HBsAg by around 85.7% and it means that the national vaccination of all infants decreased the burden of infection by more than 85% in Iranian community (8). Authors' previous study also indicated that adding HBIG to standard HBV vaccination given to the infants of infected mothers significantly decreased the HBV infection rate in this high risk group. Therefore, the role of HBIG is very important. Recent clinical data showed that hepatitis B immunoglobulin consumptions were 180 IU/mL in 6960 IU vials and 540 IU/5 mL in 2670 IU vials (as detailed data showed in the brands of Kedrion HBIG (Kedrion, USA), 180 IU/mL in 5300 IU vials and 540 IU/3mL in 2670 IU vials were used in the current study). The authors also used 200 IU/mL of CSL Behring (Behring Co., UK) in 1660 IU vials. Based on the authors' experiences, 20% of all 5 mL vials may be used for infant prevention due to the unavailability of one-milliliter vials. Therefore, it can be concluded that 50% of infants (7494 cases) did not receive immunoglobulin in this year, due to undetermined status of their mothers; it means that the mothers were not checked for HBsAg.

Since the importance of clarifying the maternal HbsAg status is evident the pregnancy period is a suitable time to check these target groups. Based on the findings, a

laboratory-based potentiation screening to check all pregnant females in Iran is necessary.

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