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Hepatitis B prevalence in pregnant women in China: Progress and realities

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To combat the burden of hepatitis B virus (HBV) infection, the Chinese government introduced national HBV vaccination in 1992. Childhood HBV vaccination was integrated into routine childhood immunisation, but initially the costs were met by parents; later, an alliance with GAVI in 2002, and subsequently the Chinese government, provisioned free three-dose hepatitis B vaccine to all newborns [1]. Vaccination is guided by the National Immunization Schedule, and the first dose of hepatitis B vaccine (the birth dose) is administered within 24 hours of birth [2]. As a result, the prevalence in children under the age of 5 has fallen from 10% to 0.3% [3]. The national hepatitis B sero-epidemiological survey, and other analyses, have indicated a decline in HBsAg positivity in those aged 15–29 years, reducing the rate in the childbearing female population.

The purpose of the study published by Jue Liu and co-authors was to estimate the national and regional prevalence of HBV infection among pregnant women in China between 2015–2020 [4]. The National Integrated Prevention of Mother-to-Child Transmission of HIV, Syphilis and Hepatitis B Programme (iPMTCT Programme) has garnered data from 2856 counties in 31 provinces. In this unparalleled national cross-sectional study, a staggering total of more than 90 million pregnant women attending antenatal care in China have been tested for HBsAg over this period: 5.6 million mothers (6.17%, 95% CI: 6.16–6.18%) tested positive. The data indicate that the prevalence of HBV infection among pregnant women has declined from 7.30% in 2015 to 5.44% in 2020.

Nonetheless, the prevalence of HBV in pregnant women ranged widely from 1.8% to 11.9% in the 31 provinces. In six provinces, the HBsAg prevalence ranged from 9.3% to 11.9%, whilst the prevalence of HBV infection has increased since 2015 in three western areas: Tibet (6.3% to 11.3%), Qinghai (4.3% to 6.9%) and Xinjiang (3.3% to 3.6%) It is difficult to understand what factors have played an im-

portant role in these latter areas: the authors suggest a combination of historically high prevalence rates, lower awareness of diseases, language barriers, and different health sector measures have made the disease harder to prevent and control. In addition, lower rates of hospital delivery and timely birth dose vaccination could be the other two key factors.

This study builds on previous prevalence data [5]. Disparities in prevalence from earlier epidemiological surveys could relate to discrepancies between the ages of pregnant women versus women of reproductive age – and could be partly explained as a result of pregnancy occurring at a later age after the implementation of the “two child” policy in 2015 [6, 7]. Unfortunately, the data comprised aggregated data, and the analysis did not include age, vaccination record, or HBeAg and HBV DNA status, or the results of post vaccination testing in infants born to HBsAg positive mothers.

This remarkable survey indicates progress in many regions of China. Nonetheless it is sobering to appreciate that the prevalence of HBV infection remains relatively high in childbearing women (and by inference men of the same age) in this populous country, three decades after the introduction of HBV vaccination in infants [8]. Despite these public health efforts in China, there remains ongoing transmission of HBV in some areas. The risk of neonatal acquisition (and thus chronic hepatitis B) is highest in children born to HBeAg-positive mothers or mothers with HBV DNA concentrations higher than 200,000 IU/ml. Young HBsAg positive mothers have a higher likelihood of HBeAg positivity and higher HBV DNA concentrations. Given the risk and consequences of mother to child transmission (MTCT), collaborative public health measures and networks for eliminating MTCT have been implemented [9]. These data need to feed into effective awareness and community education programs to emphasize facility births and birth dose vaccine coverage, particularly in less easy to reach regions, to reduce MTCT.

Reducing maternal HBV DNA concentrations before delivery is an important additional intervention to prevent MTCT. Identification of pregnant mothers with high viral loads before a gestational

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age of 28 weeks is necessary to institute prophylaxis with nucleoside analogues. The risk of MTCT despite active and passive immunoprophylaxis has led the WHO to advise antiviral therapy during the third trimester in HBeAg positive pregnant women or those with HBV DNA concentrations > 200,000 IU/ml [10].

Vaccination alone cannot reduce the burden of HBV infection in the adult Chinese population. Testing and treatment strategies will require amplification and integration into health interventions targeted to pregnant women and their families. Treatment of pregnant mothers who merit antiviral treatment will achieve a dual outcome: Prevention of MTCT, and avoidance of disease progression in hepatitis B infected women. The maxim that “who delivers the infant vaccinates the infant” will need to be rounded to “who tests the mother treats the mother and vaccinates the infant.” Only in this way can HBV elimination goals be propelled to all regions and communities.

Declaration of Competing Interest

Dr Dusheiko has acted as an advisor to Gilead Sciences. He serves on Drug Safety Monitoring Boards for Janssen, Glaxo Smith Kline, Arbutus and Aligos.

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