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The Effectiveness of Post-Exposure Prophylaxis in Infants Born to Hepatitis B Virus Positive Mothers in the Kurdistan Region, Iraq

Amira S. Khalil,[1] Warveen L. Abdulkareem,[2] and Nawfal R. Hussein[2,*]

[1]Gynecology Hospital, Duhok, Kurdistan Region, Iraq
[2]Department of Internal Medicine, Azadi Teaching Hospital, College of Medicine, University of Duhok, Duhok, Kurdistan Region, Iraq

[*]*Corresponding author*: Nawfal R. Hussein, Department of Internal Medicine, Azadi Teaching Hospital, College of Medicine, University of Duhok, Duhok, Kurdistan Region, Iraq, E-mail: Nawfal.hussein@yahoo.com

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Dear Editor,

Infection with hepatitis B virus is a public health problem particularly in developing countries (1, 2). Chronic HBV may predispose to liver failure, cirrhosis and hepatocellular carcinoma (1). In addition, chronic HBV infection puts a heavy burden on the health system of third world countries such as Iraq. Public health planers have laid out an ambitious plan to reduce the transmission of the virus in the city of Duhok, Kurdistan Iraq. The plan is composed of two main parts: pre-exposure and post-exposure prophylaxis. Pre-exposure prophylaxis includes vaccinating all newborn babies as well as anyone who is at risk, such as health care workers. The main target for post-exposure prophylaxis is to intercept perinatal mother-to-child transmission (or perinatal vertical transmission). In high-risk areas, all pregnant women should be screened for HBV as well as checking if positive for HBeAg. HBeAg is a marker of viral replication and its positivity is associated with high viral loads. The chance of mother-to-child transmission is ranging from 10% in mothers who are negative for HBeAg to up to 90% in mothers who are positive with HBeAg. Once the infection is acquired, the chronic infection would be established in 90% of the newborns. Such an infection in one's early life is associated with a high morbidity and mortality (3). Hence, screening pregnant women for HBV is mandatory here in Duhok. Administering a HBV vaccine and giving hepatitis B immune globulin (HBIG) immediately after birth for newborns of infected mothers are efficient means for the prevention of perinatal transmission and therefore help reduce the HBV infection in the whole population (1). This strategy of post-exposure prophylaxis can eliminate up to 95% of vertical transmission (4). In this project, we aimed to study the effectiveness of our vertical transmission prevention measures in the city of Duhok. Throughout the period of January 2015 to January 2016, 95 HBV at term pregnant women visited the Duhok Maternity Hospital. 93/95 (97.9 %) were HBe-Antigen (HBeAg) negative with an undetectable HBV viral load. 28/95 (29.4%) of those women needed to have a caesarian section for their delivery. According to the local protocol, irrespective to the mean of delivery and HBeAg positivity, all infants of HBV infected mothers should receive HBIG and should receive the first, second and third dose of the vaccine at birth, 2 months and 6 months after birth, respectively. After the completion of the prophylaxis program, all infants were tested for HBsAg and anti-HBs antibodies (HBsAb). All of the subjects were negative for HBsAg and 94/95 (98.9%) of infants' HBsAb titers were $\geq$ 10 IU/L. These results are in agreement with a study conducted in Iran where only 2.6% of the infants acquired the infection in spite of the prophylaxis measures. In the same study, more than 94% of the infants achieved a titer of higher than 10 IU/L (5). Furthermore, our results are in agreement with data published by the centers for disease control (CDC) proposing that HBIG and three doses of vaccine can prevent the HBV infection in newborns of HBV infected mothers with an effectiveness of 85% to 95% (6). The achievement of protective HBsAb levels in this study was higher than that previously achieved in adults where only 85% of the subjects achieved the protective levels (7). In conclusion, the post-exposure prophylaxis measures in Duhok are effective in preventing mother-to-child transmission. More studies are needed to explore the successfulness of other preventive measures.

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