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Risk-Based Screening Versus Universal Screening for Hepatitis B Virus Infection Among Pregnant Women in Egypt

Doa'a A Saleh
Cairo University, Egypt

Background: Approximately 240 million people worldwide are chronically infected with hepatitis B virus (HBV), with Egypt being an area of intermediate endemicity. Children born to hepatitis B surface antigen (HBsAg) and envelope antigen (HBeAg) positive mothers have a 70-90% chance of HBV perinatal acquisition; 85-90% of these infections become chronic. HBV vaccination in conjunction with gamma globulin at birth reduces perinatal transmission rates by 90%. Chronic HBV carriers have an increased lifetime risk of dying from hepatocellular carcinoma and liver cirrhosis and are the main reservoir for HBV transmission. Routine HBV antenatal screening is not practiced in Egypt.

Aim of the study: To assess the prevalence and risk factors for HBsAg positivity among pregnant women in three rural Egyptian villages.

Design/Methods: Pregnant women attending the rural health unit antenatal clinics in three villages in the Nile Delta, enrolled in this perinatal cohort studying hepatitis transmission from 1997- 2005. After obtaining informed consent, serum samples were tested for HBsAg and liver function tests (ALT, AST, total and direct bilirubin). Demographic characteristics and risk factors for infection were assessed using questionnaires. All infants born to HBsAg positive women in the study were given HBV vaccine after delivery.

Results: Forty-two (1.2%) of 3408 screened pregnant women were HBsAg positive. The median age of recruited women was 24 years (range: 16-48). Age, parity, working in a health care facility, and history of jaundice, liver disease or viral hepatitis were not significantly associated with HBsAg positivity. Women with primary/preparatory school had 2.3 times greater risk to be HBsAg positive than those with a higher level of education ($p=0.012$). There were no significant differences in levels of ALT, AST, total and direct bilirubin between those with and without HBsAg. However, when asked about their health perceptions, HBsAg positive women were 2.5 times more likely to perceive their health as very bad ($p=0.003$). No parenteral risk factors (surgery, blood transfusion, needle stick injury, sutures, injections, IV lines, endoscopy, renal dialysis, dental procedures, injection treatment for schistosomiasis, abortion, stillbirth, cesarean section, episiotomy or hospital admission) were significantly associated with HBsAg. Having hepatitis C antibodies or RNA was not associated with HBsAg seropositivity.

Conclusions: Antenatal screening for HBV showed risk-based screening alone would have missed all the positive HBsAg positive pregnant women. Thus, diagnosis of HBV-infected pregnant women would allow the application of the appropriate preventive measures thereby reducing potential perinatal transmission and liver-related complications.

doa_a_saleh@kasralainy.edu.eg