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Hepatitis B and breastfeeding

A statement prepared jointly by the Global Programme for Vaccines and Immunization (GPV) and the Divisions of Child Health and Development (CHD), and Reproductive Health (Technical Support) (RHT) World Health Organization

Introduction

The question of whether breastfeeding plays a significant role in the transmission of hepatitis B has been asked for many years. It is important given the critical role of breastfeeding and the fact that about 5% of mothers worldwide are chronic hepatitis B virus (HBV) carriers. Examination of relevant studies indicates that there is no evidence that breastfeeding poses any additional risk to infants of HBV carrier mothers. The use of hepatitis B vaccine in infant immunization programmes, recommended by WHO and now implemented in 80 countries, is a further development that will eventually eliminate risk of transmission. This document discusses the issues relevant to breastfeeding and HBV transmission, and provides guidance from a WHO perspective.

Hepatitis B virus infection

HBV infection is of major public health importance world-wide. It can cause asymptomatic infection, clinical acute hepatitis, fulminant hepatitis, or persistent infection which is known as the chronic carrier state. Globally, there are over 350 million chronic carriers of HBV who are at high risk of developing severe sequelae including chronic active hepatitis, cirrhosis, and primary hepatocellular carcinoma, complications which kill more than 1 million persons per year. It has been estimated that as many as 25-35% of individuals who become chronic carriers will eventually die from these complications (1).

Transmission of HBV

The pattern of transmission of HBV varies with carrier prevalence. In areas where persistent infection is highly endemic (including East and Southeast Asia and Sub-Saharan Africa), transmission is mainly either perinatal, from a carrier mother to her newborn, or through close contact between children. (horizontal transmission). In Asia approximately 40% of HBV carrier women of childbearing age are also positive for the hepatitis "e" antigen (HBeAg) and these mothers have a 70% to 90% chance of infecting their newborn perinatally. Perinatal transmission of HBV occurs mainly during or soon after delivery, through contact of the infant with maternal blood and other body fluids. In Asia, perinatal transmission accounts for approximately 25% to 30% of the carrier pool. Outside Asia, approximately 10% of HBV carrier women of childbearing age have HBeAg, and perinatal transmission is a much less important contributor to the carrier

pool. In areas of low endemicity (including Western Europe and North America), perinatal transmission is less common and transmission occurs mainly through blood and by sexual contact between adults (2). However, most industrialized countries screen every pregnant women for HBsAg, and treat infants of carrier mothers with specific hyperimmune globulin, (Hepatitis B Immune Globulin, or HBIG) and hepatitis B (HB) vaccine, (3).

Risk of transmission by breastfeeding

Breastfeeding has been suggested as an additional mechanism by which infants may acquire HBV infection, because small amounts of Hepatitis B surface antigen (HBsAg) have been detected in some samples of breastmilk. However, there is no evidence that breastfeeding increases the risk of mother to child transmission. A follow up study of 147 infants born to mothers known to be carriers of HBV in Taiwan (4) found similar rates of HBV infection in 92 children who were breastfed compared to 55 who were bottle fed. A study in Britain, involving 126 subjects, also showed no additional risk for breastfed versus non breastfed infants of carrier mothers (5). This study included the measurement of HBeAg status of the mothers, but found no association between maternal e-antigen status and transmission rates. These findings suggest strongly that any risk of transmission associated with breastmilk is negligible compared to the high risk of exposure to maternal blood and body fluids at birth. Experts on hepatitis, however, do have concerns that breast pathology such as cracked or bleeding nipples or lesions with serous exudates could expose the infant to infectious doses of HBV.

Prevention of perinatal and horizontal HBV transmission

Active immunization with HB vaccine is effective for the prevention of both perinatal and horizontal transmission of HBV (6-7). Immunization can prevent development of the persistent carrier state in 70-90% of infants of carrier mothers, and in up to 95% of infants who are infected horizontally. Administration of HBIG within 24 hours of birth together with the first dose of vaccine increases the protection up to 85-90% in infants of HBV carrier mothers (1). However, neither screening of pregnant women for HBV infection nor use of HBIG are feasible in most developing countries. Routine immunization of infants with HB vaccine is therefore recommended, the first dose to be given within 48 hours of birth where feasible, and subsequent doses with routine childhood immunizations. Delivery of HB vaccine at birth is possible with clinic or hospital deliveries but is more difficult following home deliveries where contact with the immunization system does not take place for several weeks or months. A dose of HB vaccine around the time of birth is more important in Asia where perinatal transmission is commoner. Infants who have received their first dose of vaccine can safely breastfeed (8).

In areas where infants are not routinely immunized against HBV, the issue of wet-nurses and the use of donated breastmilk must be considered. Most non-carrier mothers in endemic areas have previously been infected with HBV and have recovered, and have passively transferred anti-HBs antibody through the placenta to the infant, protecting them against HBV infection for approximately 6 months. In many industrial countries, wet-nurses and donor mothers are screened for HBsAg, and if positive their milk is not used for infants other than their own. However, this strategy is less feasible in developing countries where HBV testing may be unavailable. Infants immunized with HB vaccine have no risk of HBV infection through wet nurses or donated breastmilk.

Recommendations

WHO recommends that all infants receive hepatitis B vaccine as part of routine childhood immunization. Where feasible, the first dose should be given within 48 hours of birth or as soon as possible thereafter. This will substantially reduce perinatal transmission, and virtually eliminate any risk of transmission through breastfeeding or breastmilk feeding. Immunization of infants will also prevent infection from all other modes of HBV transmission.

WHO and UNICEF recommend that all infants be exclusively breastfed for at least 4 and if possible 6 months, and that they continue to breastfeed up to two years of age or beyond with the addition of adequate complementary foods from about 6 months of age. There is a considerable risk of morbidity and mortality among infants who are not breastfed. There is no evidence that breastfeeding from an HBV infected mother poses an additional risk of HBV infection to her infant, even without immunization. Thus, even where HBV infection is highly endemic and immunization against HBV is not available, breastfeeding remains the recommended method of infant feeding.

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