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Mother-infant hepatitis B treatment and prevention are feasible in sub-Saharan Africa

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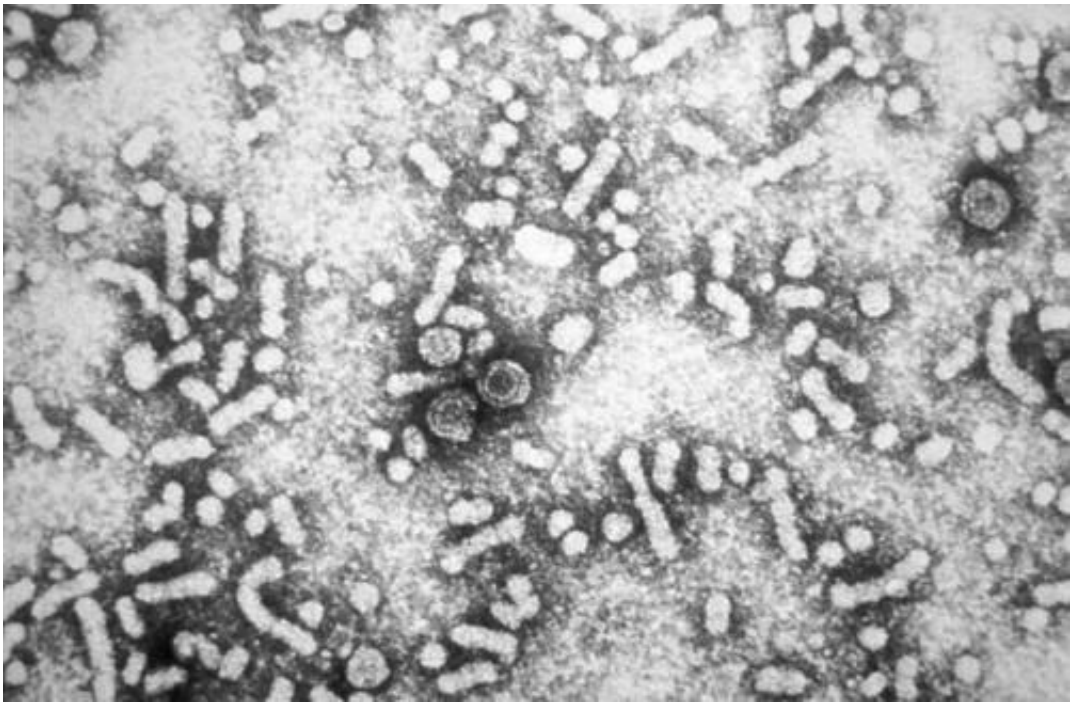

Electron micrograph of hepatitis B virus. Credit: Centers for Disease Control and Prevention

Hepatitis B virus (HBV) remains endemic throughout sub-Saharan Africa despite the widespread availability of effective childhood vaccines. In the Democratic Republic of the Congo, HBV treatment and birth-dose vaccination programs are not established. UNC School of Medicine researchers led a study to evaluate the feasibility and acceptability of HBV testing and treatment of pregnant women, as well

as birth-dose vaccination of HBV-exposed infants. This program was added to existing public health infrastructure to prevent mother-to-child transmission of HBV in the Democratic Republic of the Congo.

At two high-volume maternity centers in the city of Kinshasa, the research team screened pregnant women for HBV infection at routine prenatal care registration. Those who tested positive and had a gestational age of 24 weeks or less were included in this study, which ran between September 2018 and February 2019.

Of the 4016 women screened, 109 were positive for HBV and 90 participated in the study. Of the 88 infants born to mothers with HBV, 60 received the birth-dose vaccine and 46 received a vaccine during the 24-hour time frame defined as timely vaccination according to the WHO. The researchers found no evidence of mother-to-child HBV transmission or serious vaccine-related side effects. In the mothers, the researchers observed no serious adverse side effects from the treatment tenofovir disoproxil fumarate, aside from one woman who reported dizziness.

"We're confident that birth-dose vaccination against HBV infection integrated within the current expanded program of immunization and disease treatment could accelerate progress toward HBV elimination in Africa," said first author Peyton Thompson, MD, MSCR, assistant professor of infectious diseases in the UNC Department of Pediatrics.

In countries where a birth-dose of HBV vaccine has been introduced, studies have shown its effectiveness in preventing mother-to-child transmission. But transmission did occur in some infants born to women with high viral loads because the birth-dose vaccine was not coupled with maternal antiviral prophylaxis.

In its 2020 guidelines on HBV prevention of mother-to-child

transmission, the World Health Organization recommends that HBV-infected women with high-risk HBV infection receive antiviral prophylaxis from the 28th week of pregnancy to delivery or beyond in order to prevent breakthrough mother-to-child transmission in addition to infant vaccination (including a birth-dose vaccine). Until now, there was no published study to date evaluating a dual approach to preventing HBV mother-to-child transmission within the existing HIV framework in Africa.

"Our results support the feasibility of the WHO's 2020 guidelines even in the most resource-challenged settings, especially when integrated into existing HIV prevention of mother-to-child transmission program infrastructure," said Jonathan Parr, MD, MPH, assistant professor of infectious diseases in the UNC Department of Medicine.

Provided by University of North Carolina School of Medicine

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