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Hepatitis B vaccination status and vaccine immune response among children in rural Senegal

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Background:

Hepatitis B vaccination during childhood is key to reduce the prevalence of Hepatitis B virus (HBV) infection. In Senegal, a highly endemic country, the three-dose hepatitis B vaccine and the birth dose vaccine were introduced in the Expanded Programme on Immunization (EPI) in 2004 and 2016 respectively. This study aimed to determine chronic HBV infection prevalence, hepatitis B vaccination status and vaccine immunity among children in Senegal.

Methods:

A cross-sectional study including HBV screening was conducted at home among children aged 6 months to 15 years (i.e. born after the introduction of the HBV vaccine in the EPI) in the rural zone of Niakhar. Dried Blood Spot (DBS) samples were collected for the detection of HBsAg, anti-HBc Ab and anti-HBs Ab using chemoluminescence. Vaccination status was assessed using information on vaccination cards. Detectable vaccine immunity was defined with an adjusted DBS threshold of DOI \geq 0.36 IU/mL (corresponding to 10 IU/mL in venous blood sampling).

Results:

Between October and December 2018, 455 children were enrolled. Preliminary results show that 7/455 (1.5%) had been in contact with HBV (positive anti-HBc Ab) and 5/455 (1.1%) had chronic HBV infection (positive HBsAg).

Only 161/455 (35.4%) children had a vaccination card available. Among those, 150/161 (93.2%) received at least 3 doses of hepatitis B vaccine, of which 83/150 (55.3%) had detectable vaccine immunity. The proportion of children with detectable vaccine immunity was significantly higher in children <5 years than in children aged 5-9 and 10-15 (72.3% versus 47.3%, $p = 0.006$ and 72.3% versus 14.3%, $p < 0.001$).

Conclusions:

Preliminary results suggest a low prevalence of HBV chronic infection among children born after the introduction of HBV vaccination in Senegal. However, detectable vaccine immunity rapidly decreases with age among vaccinated children,

signalling a need for further studies on the immune response to HBV vaccination in this context.

Key messages:

- HBV chronic infection is low among children born after the introduction of HBV vaccination in Senegal.
- Further studies on the immune response to HBV vaccination in this context are needed.