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THE IMPORTANCE OF VACCINATION OF HEPATITIS B IN CHILDREN

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Annotation

The first vaccine for active immunization, introduced in 1982, was prepared from purified, noninfectious 22-nm spherical forms of HBsAg derived from the plasma of healthy HBsAg carriers. In 1987, the plasma-derived vaccine was supplanted by a genetically engineered vaccine derived from recombinant yeast. The latter vaccine consists of HBsAg particles that are nonglycosylated but are otherwise indistinguishable from natural HBsAg. Current recommendations can be divided into those for preexposure and postexposure prophylaxis.

For preexposure prophylaxis against hepatitis B in settings of frequent exposure (health workers exposed to blood; hemodialysis patients and staff; residents and staff of custodial institutions for the developmentally handicapped; injection drug users; inmates of long-term correctional facilities; persons with multiple sexual partners; persons such as hemophiliacs who require long-term, high-volume therapy with blood derivatives; household and sexual contacts of HBsAg carriers; persons living in or traveling extensively in endemic areas; unvaccinated children under the age of 18; three IM (deltoid, not gluteal) injections of hepatitis B vaccine are recommended at 0, 1, and 6 months.

The two available recombinant hepatitis B vaccines are comparable, one containing 10 µg of HBsAg (Recombivax-HB) and the other containing 20 µg of HBsAg (Engerix-B), and recommended doses for each injection vary for the two preparations.

For perinatal exposure of infants born to HBsAg-positive mothers, a single dose of HBIG, 0.5 mL, should be administered IM in the thigh immediately after birth, followed by a complete course of three injections of recombinant hepatitis B vaccine (see doses above) to be started within the first 12 h of life. For those experiencing a direct percutaneous inoculation or transmucosal exposure to HBsAg-positive blood

or body fluids (e.g., accidental needle stick, other mucosal penetration, or ingestion), a single IM dose of HBIG, 0.06 mL/kg, administered as soon after exposure as possible, is followed by a complete course of hepatitis B vaccine to begin within the first week.

The precise duration of protection afforded by hepatitis B vaccine is unknown; however, ~80–90% of immunocompetent vaccinees retain protective levels of anti-HBs for at least 5 years, and 60–80% for 10 years. Thereafter and even after anti-HBs becomes undetectable, protection persists against clinical hepatitis B, hepatitis B surface antigenemia, and chronic HBV infection. Currently, booster immunizations are not recommended routinely, except in immunosuppressed children who have lost detectable anti-HBs or immunocompetent children who sustain percutaneous HBsAg-positive inoculations after losing detectable antibody. Specifically, for hemodialysis children, annual anti-HBs testing is recommended after vaccination; booster doses are recommended when anti-HBs levels fall to <10 mIU/mL. As noted above, for children at risk of both hepatitis A and B, a combined vaccine is available containing 720 enzyme-linked immunoassay units of inactivated HAV and 20 µg of recombinant HBsAg (at 0, 1, and 6 months).

All in all, The hepatitis B vaccine has been available since the 1982s. The vaccine is safe and highly effective at preventing infection. At least 3 doses of hepatitis B vaccine are needed to prevent infection with the hepatitis B virus (HBV). The first dose (known as a "birth dose") should be given to babies within 24 hours of birth. After that, children need 2 to 3 additional doses for full protection.

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