More Lessons From the Taiwanese Hepatitis B Virus Vaccine Program

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(See the article by Su et al, on pages 757–762.)

In this issue of The Journal of Infectious Diseases, the Taiwan National Children’s Hospital group, under the capable leadership of Dr Mei-Hwei Chang, has once again used carefully constructed national surveillance data to teach us something about hepatitis B virus (HBV) infection in young subjects who received neonatal HBV vaccine. As one would predict, the highest rates for acute HBV infection were in unvaccinated individuals. Also, as expected, rates of acute HBV infection were lower in vaccinated birth cohorts aged 15–24 years than in unvaccinated birth cohorts, demonstrating once again the efficacy of the universal newborn vaccination program. The biggest disappointment was that, due to breakthrough HBV infection from mother-to-infant transmission, vaccinated infants (0.78 per 100 000) had higher rates than those aged 1–14 years (0.04 per 100 000), who had the lowest rates.

It is disconcerting that the 8 infants who were born to mothers with hepatitis B e antigen, and who developed acute HBV infection in the first year of life, were not given neonatal hepatitis B immunoglobulin (in accordance with Taiwan national vaccine policy). Although the authors discuss this problem and acknowledge that the combination of active and passive vaccination for all infants born to hepatitis B surface antigen (HbsAg)–positive women is 85%–95% effective in preventing transmission, it is puzzling that the authors do not recommend a change in the Taiwan national vaccine policy to that effect. The authors also do not comment on the fact that the infants were given the first dose of recombinant HBV vaccine at 2–43 days of life instead of within 12 hours of birth, as per the recommendation of the American Academy of Pediatrics. It is also unfortunate that there is no clinical information available to inform us whether the cases of acute HBV in vaccinated subjects differed phenotypically from cases in unvaccinated subjects. Likewise, with somewhat incomplete information, it is difficult to know if reporting physicians could be 100% accurate in differentiating acute HBV from acute on chronic HBV infection, because a liver biopsy and previous serology were necessary for that distinction but not always available.

Although the success of the aggressive universal infant vaccine program was mentioned only in passing, it is important to acknowledge the tremendous achievement this program (95% vaccine coverage beginning in 2001) has already demonstrated by its efficacy in reducing rates of chronic HBV, fulminant HBV, and hepatocellular carcinoma in children. Certainly, the decline in acute HBV cases in Taiwan from 2001 to 2008 is a remarkable success.

The most useful and cost-effective conclusions from this careful study are that energetic follow-up during the first 12 months of life should be focused on infants born to HbsAg-positive mothers and that, in a country like Taiwan where HBV is endemic, vaccine efforts could be focused on subjects ≥25 years of age who have not benefited from the universal newborn vaccination program. Given the cost in terms of both human suffering from chronic HBV liver disease and hepatocellular carcinoma and related public health expenditures, we should all continue to admire the Taiwan National Children’s Group for their efforts to analyze how best to reduce those costs, and to learn from them.

Note

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