The Changing Epidemiology of Hepatitis A Virus Infections in the United States

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(See the major article by Ly and Klevens on pages 176–82.)

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The epidemiology of hepatitis A Virus (HAV) infections has changed dramatically since HAV vaccines were licensed in the United States in the mid 1990s. In 1996, after HAV vaccines became available, the Advisory Committee for Immunization Practices (ACIP) of the Centers for Disease Control and Prevention (CDC) recommended routine immunization of selected groups at high risk of HAV infection, including travelers to HAV-endemic countries, several other risk groups, and persons with chronic liver disease [1]. In 1999, the ACIP revised their recommendations to include immunizing all children >2 years of age living in states or communities reporting ≥2 times the national annual average incidence of HAV infection (ie, communities with >20 cases per 100 000 population). In addition, states where the reported rates of HAV infection were above the national average (ie, states with 10–19 cases per 100 000 population) were advised to consider routine immunization of 2-year-old children [2].

In 2006, the ACIP changed their recommendations again to administer HAV vaccine, together with routinely administered vaccines, to all children at 1 year of age. In addition, the committee recommended continuing immunization of persons in special populations at high risk of exposure, travelers to countries where HAV is highly endemic, and persons with chronic liver disease [3].

As a result of the routine use of HAV vaccine in children, the incidence of HAV infection in the United States has decreased substantially, from 10 cases per 100 000 population in 1996 to 0.4 cases per 100 000 population in 2011 [4, 5]. Similar declines have occurred among adults of all ages, even older adults who were not specifically targeted to be immunized. Several other countries have experienced similar dramatic declines in the overall incidence of reported hepatitis due to HAV infection after the introduction of routine childhood HAV immunizations. In Israel, the incidence of hepatitis from HAV decreased by >95% a few years after a program of routine immunization of children aged 1–4 years was implemented in 1999 [6]. The decreased incidence included the entire population, with a 90.6% reduction in HAV-related hepatitis among persons 45–64 years of age and a 77.3% reduction in persons >65 years of age. Although routine childhood immunization with HAV vaccines have been very effective, several countries have experienced an increase in the incidence of HAV-related hepatitis, despite improvements in environmental hygiene, and an increase in the average age (from childhood to adolescence and adulthood) of individuals with symptomatic rather than subclinical infections. Some of these countries have not yet adopted routine childhood use of HAV vaccines despite their remarkable effectiveness and safety record [7–9].

In this issue of *The Journal of Infectious Diseases*, Ly and Klevens report the trends in diseases and complications from HAV in the United States between 1999 and 2011 [4]. The data from the National Notifiable Disease Surveillance System indicated a decline in incidence, from 6.0 cases per 100 000 population in 1999 to 0.4 cases per 100 000 population in 2011. The proportion of HAV-related hospitalizations among the reported cases increased from 7.3% in 1994 to 24.5% in 2011, and the age of hospitalized cases and of cases who died increased. However, I do not understand why the authors interpreted the data to indicate a need for immunization of all adults with HAV vaccine to prevent the few remaining cases in this population. The effective implementation of such a policy would be very difficult and not cost effective. Furthermore, the incidence of HAV-related hepatitis declined substantially in
all age groups and has remained very low even in adults and elderly individuals since the routine use of HAV vaccines in children in the United States. The rare HAV infections that occurred among older persons were likely to be clinically more severe. However, this association between clinical severity of HAV and older age is not a new observation. The mortality data suggest that an increased effort should be made to immunize persons with existing chronic liver disease. However, this is already included in the current ACIP recommendations [3]. It will be especially important to provide HAV vaccine to every person who is found to have chronic hepatitis C Virus infection when persons in the cohort born between 1945 and 1965 are screened for this infection, as has been recommended recently by the CDC [10].

Overall, the effects of the routine immunization of children with HAV vaccine in the United States, as well as several other countries that have adopted similar policies, have been extremely effective in reducing morbidity from hepatitis due to HAV in the entire population. The HAV vaccine has produced high levels of herd immunity in the total unimmunized population after its introduction as a childhood vaccine. Because the HAV vaccine has been found to be very effective in preventing transmission of HAV in entire populations, countries that transition from high HAV endemicity to intermediate or low HAV endemicity should consider adopting policies that include HAV vaccine in routine childhood immunizations [7, 11–14]. The article by Ly et al provides very useful data regarding the long-term effectiveness of a successful program to control HAV transmission by routine immunization of children with HAV vaccine in the United States.

Note

Potential conflicts of interest. Author certifies no potential conflicts of interest.

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References