IMMUNIZATIONS NEWSLETTER

PROVIDING GSA MEMBERS WITH UPDATES ON ADULT IMMUNIZATIONS

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FEATURES

News

• Progress on “the road toward a universal influenza vaccine” is reported in a research study and accompanying editorial in the Journal of Infectious Diseases. For longer-lasting immunity that is not affected by antigenic drift, influenza vaccines need to induce antibodies specific for the more structurally conserved portions of the virus, specifically the hemagglutinin (HA) head or stalk. The study shows that people who had influenza B virus infections developed antibodies against both HA elements, but those specific for the stalk were cross-protective for the two major type B lineages (Victoria and Yamagata) and cytotoxic. This indicates that the HA stalk is likely to be a better target for a universal vaccine than the HA head.

Resources

• Influenza checklists for health professionals and consumers are available on the Johnson & Johnson website Get Relief Responsibly. The patient counseling materials for health professionals are useful for helping patients learn proper ways to prevent, identify, and treat flu symptoms.

HEPATITIS VACCINES: KEYS FOR CURBING TRANSMISSION

Despite the availability of effective and safe vaccines, hepatitis A and B viruses continue to spread and make people sick. As a new hepatitis B virus (HBV) vaccine enters the American marketplace and local outbreaks of hepatitis A virus (HAV) are brought under control through aggressive immunization campaigns, a review of these viruses and preventive vaccines is timely.
As a disease, hepatitis can be caused by infections of any of the five clinically important hepatitis viruses (A through E), by other viruses, or by toxins such as alcohol. In addition to liver inflammation, hepatitis viruses can also cause symptoms in other parts of the body.

These viruses, while often producing no noticeable symptoms for decades, can lead to life-threatening illness as the infection progresses. This makes prevention very important, and early detection and treatment are necessary once infection occurs.

Hepatitis viruses can be present for decades without causing liver inflammation (hepatitis) and apparent symptoms. Unless the patient receives a liver transplant, fibrosis (liver scarring) and cirrhosis can progress to life-threatening hepatic failure. Hepatic cancer has often metastasized before it is found, frequently making it untreatable and fatal.

Hepatitis A and E viruses are transmitted primarily through oral intake of contaminated water or food. Vaccines are available for both viruses (hepatitis E vaccine is licensed only in China at this time). In the United States, the Centers for Disease Control and Prevention (CDC) recommends HAV vaccine for postexposure prophylaxis (PEP) for recent exposures (within 2 weeks) in people aged 1 to 40 years. While CDC recommendations are for older people to receive HAV-specific immunoglobulins for PEP, the agency says the vaccine can be substituted when necessary. Immunoglobulin products with therapeutic levels of antibodies to HAV are currently in short supply, and thus the vaccine is being administered to people of all ages for PEP.

Hepatitis B virus is transmitted through exposure to contaminated body fluids, including blood and semen. People can acquire hepatitis D virus only if they are infected with HBV. The HBV vaccine provides protection against types B as well as D. Importantly, use of the HBV vaccine can protect against hepatic cancer; the only other vaccine that helps prevent cancer is the human papillomavirus vaccine.

Transfer of hepatitis C virus is only through infected blood. Hepatitis C virus infections are treated effectively with oral direct-acting agents, and older agents can be used if oral agents fail. No preventive vaccine is available.

As suggested by the above transmission patterns, socioeconomic and behavioral factors are often involved in HAV and HBV transmission. This was certainly the case in recent outbreaks of HAV in California, Indiana, Kentucky, Michigan, and Utah. The outbreak in San Diego, one of several in California, provides an example of how outbreaks can begin and spread, and how vaccines can be instrumental in ending them.

As of early April of this year, 587 hepatitis A cases, 402 hospitalizations, and 20 deaths had been reported in San Diego County. Most patients were homeless and/or injection drug users; they were exposed through person-to-person contact or contact with fecally contaminated environments, the county’s Health & Human Services Agency reports.
Through aggressive HAV vaccination programs using mobile vans and teams on the streets of San Diego, the outbreak was declared "under control" in January of this year. Public health officials report administration of 137,979 doses of HAV vaccine.

San Diego County also distributed nearly 12,000 hygiene kits to provide ways for homeless and other at-risk people to control fecal contamination of the environment and sanitize their hands.

The situations in other parts of California, the Louisville, Kentucky area (including parts of Indiana), Michigan, and Utah have also been linked to people who are homeless, use injection and noninjection drugs, and their close contacts.

HAV and HBV vaccines are recommended for all children in current immunization schedules of the Centers for Disease Control and Prevention (CDC), and those completing the recommended series have immunity for three decades or more.

For adults—many of whom did not receive hepatitis vaccines as children—the vaccines are recommended only in specific situations. The vaccines were originally developed for disease prevention among travelers to endemic areas, and that remains a common situation for administration to American adults.

Both vaccines are recommended for men who have sex with men, injection drug users, patients with chronic liver disease, and those exposed to or at risk of exposure in clinical settings (e.g., health care workers, people in prisons or other places where a high proportion of adults have risks for HBV exposure, patients undergoing hemodialysis or peritoneal dialysis).

People adopting a child from an area where HAV is endemic should be vaccinated with that vaccine, as should patients with certain chronic diseases, patients with clotting factor disorders, and those possibly exposed to HAV. HBV vaccine is indicated for residents and staff of facilities for developmentally disabled people, those with HIV infections, and anyone else seeking long-term protection.

The older HBV vaccines—Engerix-B (GlaxoSmithKline) and Recombivax HB (Merck)—are administered in three doses at 0, 1, and 6 months. Heplisav-B (Dynavax) is a new HBV vaccine licensed last November by the U.S. Food and Drug Administration (FDA). It is administered in two doses 1 month apart; this regimen results in greater completion rates since people do not need to return 6 months later. The Advisory Committee on Immunization Practices (ACIP) recommended in February that this vaccine be added to the adult immunization schedule as an option for prevention of HBV infections.

The new HBV vaccine, an adjuvanted product, has yielded higher rates of seroprotection in clinical trials, compared with Engerix-B. However, higher rates of cardiovascular events were found in one of the clinical trials of Heplisav-B; this delayed FDA approval as more data were sought, and rates of adverse effects are being monitored as the new vaccine enters widespread clinical use.

The cost of Heplisav-B should not be a factor in its adoption. The wholesale acquisition cost of the product is $115 per dose, or $230 for the regimen. While more expensive than older products, discount pricing will be available for many health systems, and the higher completion rates will provide better outcomes over the long term. In an industry-funded analysis, Heplisav-B had a favorable incremental cost-effectiveness ratio compared with Engerix-B for patients with diabetes, those with chronic kidney disease or end-stage renal disease, and travelers.
The month of May is Hepatitis Awareness Month in the United States, and May 19 is Hepatitis Testing Day. It’s a perfect time for all vaccine advocates to interact with patients about this silent but deadly disease.

People can check their hepatitis risk using an online assessment tool. It will advise them of their screening and vaccination needs based on a short demographic, health, and travel history. A variety of health promotion activities, posters (see example in Figure 1), fact sheets, and ideas are available through the CDC website—all designed to “shed light on this hidden epidemic by raising awareness of viral hepatitis and encouraging priority populations to get tested.”

**SOURCES AND RESOURCES**

- CDC viral hepatitis home page
- ACIP GRADE of evidence for Heplisav-B

**FIGURE 1.** “Know Hepatitis B” campaign infographic—an example of health promotional materials available on the CDC website.

Source: Centers for Disease Control and Prevention.