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Hepatitis A vaccination for post-exposure prophylaxis in persons aged 40 years and older

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The Centers for Disease Control and Prevention collaborated with state public health officials and the Food and Drug Administration to control a multistate outbreak of hepatitis A virus (HAV) in the United States during May–July 2013 (http://www.cdc.gov/hepatitis/Outbreaks/2013/A1b-03-31/index.html). Pomegranate seeds from Turkey were determined to be the most likely vehicle. As of August 1, 158 outbreak related cases were confirmed. The age range of cases was 1–84 years. Older adults are more likely to have severe disease. Importantly, 108 (68% of cases) were 40 years of age and older. All hospitalizations, 69 (44% of cases), were in persons older than 18 years of age, and 72% of hospitalized cases were older than 40 years of age. This is the largest hepatitis A outbreak since 2003 when greater than 500 cases in Pennsylvania were associated with contaminated green onions [1].

Based on the results of a study comparing the efficacy of hepatitis A vaccine and immunoglobulin G (IG) in persons 2–40 years of age [2], the Advisory Committee on Immunization Practices recommends hepatitis A vaccine for post-exposure prophylaxis (PEP) of healthy persons aged 12 months–40 years [3]. Administration of vaccine or IG is recommended within two weeks of exposure since efficacy beyond two weeks is not known. For persons aged greater than 40 years, IG is preferred; vaccine can be used if IG cannot be obtained. During the recent multi-state hepatitis A outbreak, some states opted for hepatitis A vaccine instead of IG for adults aged greater than 40 years. Hepatitis A can be more severe in older adults, and vaccine response might be less robust. However, limited data exist on the immunogenicity and efficacy of hepatitis A vaccine among older adults.

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In a previous hepatitis A vaccine randomized clinical trial, published results included people 18 years of age or older, but were not delineated by age groups [4]. Seroconversion to anti-HAV positive, defined as ≥20 mIU anti-HAV, served as a surrogate of protection. Unpublished data from this study indicated that at 15 and 30 days, 74% (*n* = 125) and 90% (*n* = 128) of adults ages 40–49 years seroconverted (HAV-specific IgG) after a single dose of vaccine; 54% (*n* = 37) and 81% (*n* = 42) of adults ages 50–59 years seroconverted; and 30% (*n* = 10) and 50% (*n* = 10) of adults ages ≥60 years seroconverted. The geometric mean titers (expressed in mIU/ml) at 15 and 30 days were 26.09 (*n* = 125) and 87.97 (*n* = 121) for adults ages 40–49 years; 12.80 (*n* = 37) and 39.70 (*n* = 41) for adults ages 50–59 years; and 1.62 (*n* = 10) and 4.49 (*n* = 9) for adults ages ≥60 years, respectively. The sample sizes were small for age groups 50 and older, and the data included antibody titers from two methods of vaccine administration (needle and jet-injector) [4]. However, 15 day titers for adults 40–49 years of age suggest that hepatitis A vaccine is likely to provide rapid acquisition of protection. Among adults ages 50–59 years, data suggest substantial protection by 30 days post-vaccination. Additional U.S. studies are needed to determine optimal hepatitis A vaccine use for post-exposure prophylaxis among adults older than 40 years of age, but until such studies are available, the administration of IG to this age group is preferred [3].

Abbreviations

HAV	hepatitis A virus
n	sample size (denominator)
IG	immunoglobulin G
PEP	post-exposure prophylaxis
mIU/ml	milli-international units per milliliter

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