Clinical Recognition and Management of Hepatitis A in the Context of an Ongoing Outbreak in Los Angeles County

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The Los Angeles County Department of Public Health declared a local outbreak of hepatitis A among persons reporting drug use and/or homelessness in September 2017 and also reported a concerning increase in hepatitis A illness among men who have sex with men (MSM) in November 2017. The Centers for Disease Control and Prevention (CDC) announced on June 11, 2018 that they are investigating hepatitis A outbreaks in multiple states among persons reporting drug use and/or homelessness and their contacts. The rise in cases among MSM in LA County is occurring as large outbreaks of hepatitis A are being reported in the U.S. (New York City and Colorado) and internationally.

This article will expand upon the guidance found in the health alerts and will review actions clinicians can take to improve the recognition, reporting, and management of hepatitis A to facilitate outbreak control and protect their patients and their community’s health.

Background

Hepatitis A virus (HAV) is an RNA picornavirus and humans are its only known reservoir. The virus infects the liver and is then secreted into feces where it is present from two weeks before until about a week after symptom onset. HAV can persist on environmental surfaces and is resistant to the processes usually used to eliminate bacterial pathogens from food. It is transmitted through the fecal-oral route, for example by ingesting food or water contaminated with the feces of an infected person, touching a contaminated surface or objects, or having sexual contact with an infected partner. Vaccination is recommended for persons at increased risk for hepatitis A, including persons traveling to or working in countries that have high or intermediate rates of infection, MSM, IDUs, and persons with occupational risk of infection. Vaccination is also recommended for persons with clotting-factor disorders, although changes in clotting factor preparation and donor screening have markedly reduced the risk in this group.

Increased Cases Among Homeless Persons

The hepatitis A outbreak in LA County among persons who are homeless or use illicit drugs followed a large ongoing outbreak among these risk groups in San Diego County that began in November 2016. As of October 2017, a total of 536 hepatitis A outbreak-associated cases had been confirmed in San Diego with 20 deaths (3.7%); most persons who died had underlying liver disease, often from hepatitis C. Almost 69% of San Diego cases had been hospitalized. Three-quarters of the cases occurred among those who are homeless and/or are IDUs. San Diego cases also occurred among persons who provided services to or had significant contact with the homeless, including volunteers at shelters and sanitation workers. Health officials in Santa Cruz County also identified an increase in hepatitis A cases with most occurring among the same risk groups.

Beginning in June 2017, cases of hepatitis A were observed among persons in LA County who had recent exposure in San Diego or Santa Cruz County. LA County health officials declared an outbreak in September when hepatitis A was confirmed in two homeless LA County residents without any links to San Diego or Santa Cruz, indicating local transmission. Since then, additional cases have occurred among the homeless and IDUs, among persons who are incarcerated, and at a state hospital. In the latter facility, three contacts to the case also developed hepatitis A. LA County outbreak-associated case counts can be found here.
Hepatitis A: Los Angeles County outbreak, diagnosis, and management

**Increased Cases Among MSM**

In addition to the LA County outbreak among homeless persons and IDUs, there has been an increase in hepatitis A illness among MSM. In 2017, there were 23 confirmed cases among MSM compared with 9 cases in 2016 and no reported cases in 2015. Several of the MSM cases reported travel to San Diego or other U.S. and international locations with ongoing outbreaks. Since the beginning of 2017, almost 6,000 cases of hepatitis A in MSM have been reported 14 European countries and over 700 in Chile. In the U.S., hepatitis A outbreaks in MSM have been identified in New York City and Colorado. San Francisco also has recently seen an increase in hepatitis A cases among MSM.

**Clinical Presentation**

The time between hepatitis A infection and onset of symptoms is about four weeks but can range from 15–50 days. Approximately 70% of adults with hepatitis A infection will experience symptoms such as fever, malaise, nausea, vomiting, and abdominal pain. These are followed in several days by signs of hepatic dysfunction including jaundice, which develops in approximately 70% of symptomatic persons, scleral icterus, dark urine, and clay colored stools. Symptoms generally last for several weeks. Some persons may have prolonged disease up to 6 months or a relapsing course. Those with prolonged and relapsing disease also will shed virus and be infectious for longer periods.

**Diagnosis**

Clinicians should suspect hepatitis A in patients who have risk factors for infection and who have abrupt onset of prodromal symptoms (nausea, anorexia, fever, malaise, or abdominal pain) and jaundice or elevated serum aminotransferase levels. Diagnosis of hepatitis A is supported by demonstration of an antibody response to infection. Anti-HAV IgM becomes detectable several days before the onset of symptoms and typically remains positive for 3–6 months after infection (Table 1). Rarely, detectable anti-HAV IgM has been reported to persist for up to 5 years. Generally, the presence of anti-HAV IgG and the absence of IgM indicates immunity to hepatitis A through vaccination or previous infection. Because HAV IgM has a high false-positive rate, testing of asymptomatic individuals is not recommended. A serology panel should be obtained to potentially detect other causes of viral hepatitis as the groups at risk in the current LA County outbreak are also at risk for other infectious etiologies. HIV testing is also recommended for those whose HIV-status is undocumented.

**Table 1. Interpretation of Hepatitis A Virus (HAV) Serologies**

<table>
<thead>
<tr>
<th>Serologic Result</th>
<th>Possible Interpretations*</th>
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<tbody>
<tr>
<td>Anti-HAV IgM positive</td>
<td>• Acute hepatitis A infection</td>
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<tr>
<td></td>
<td>• False positive</td>
</tr>
<tr>
<td></td>
<td>• Prolonged (&gt;6 months) persistence after acute infection (rare)</td>
</tr>
<tr>
<td>Anti-HAV IgG positive</td>
<td>• Previous immunization with hepatitis A vaccine</td>
</tr>
<tr>
<td></td>
<td>• Previous hepatitis A infection</td>
</tr>
<tr>
<td>Anti-HAV IgM and IgG positive</td>
<td>• Late symptomatic infection</td>
</tr>
<tr>
<td></td>
<td>• Chronic relapsing hepatitis A infection</td>
</tr>
<tr>
<td>Anti-HAV IgG negative</td>
<td>• No immunity to hepatitis</td>
</tr>
<tr>
<td></td>
<td>• Loss of detectable antibodies years after vaccination (does not necessarily indicate loss of immunity to hepatitis A)</td>
</tr>
</tbody>
</table>

* Not intended to be exhaustive; other interpretations are possible.

**Management**
No specific treatment exists for acute hepatitis A illness. Supportive therapy is recommended. Hospitalization may be needed for patients who are dehydrated or have fulminant liver disease.

For persons who are homeless or use illicit drugs, hospitalization can facilitate improved nutrition, reduce the risk of transmission, and enable linkage with services including the provision of housing. The LA County Department of Public Health (DPH) has access to several beds in a recuperative care facility for patients who would benefit from ongoing care. Among hepatitis A infected persons in the San Diego outbreak, almost 70% were hospitalized, a proportion substantially higher than for sporadic disease or in most other hepatitis A outbreaks.6

Infected persons should be counseled to wash their hands after using the bathroom and before handling food, especially for two weeks after the onset of symptoms. Infected occupational food handlers should be advised to not return to work until two weeks after the onset of symptoms or seven days after the onset of jaundice.

**Reporting and Infection Control**

In the context of the current outbreak, any homeless person, IDU, or MSM with symptoms or signs consistent with hepatitis A infection should be immediately reported to DPH instead of waiting for anti-HAV IgM results. Immediate reporting allows the health department to interview cases on-site, which facilitates investigation and prevention of transmission if the patient tests positive. DPH also can facilitate expedited anti-HAV IgM testing through the DPH Public Health Laboratory, if needed. Importantly, homeless persons or persons using illicit drugs should not be discharged to the street because they may be lost to follow-up. If necessary, DPH can assist with finding housing for persons with suspected hepatitis A who are ready for discharge from the hospital.

For non-outbreak associated cases of hepatitis A, clinical providers should continue to report infected persons (defined by the presence of compatible symptoms or risk factors and presence of positive anti-HAV IgM) to DPH within one working day of receiving the laboratory results. See box below for reporting information.

DPH investigates all acute hepatitis A case reports to confirm infection and to identify and control the source of infection, and protect those who already have been exposed. DPH will attempt to identify and provide post-exposure prophylaxis (PEP) to persons who had close personal contact with the case such as household members or persons with intimate contact. For the homeless, this would include persons who are in the same encampment as a case. Hepatitis A illness occurring in a food handler is investigated urgently to assess the likelihood of transmission to facility patrons during the infectious period. A public notification might be considered if potentially exposed patrons can be identified and provided with PEP within two weeks of exposure.

**Reporting Hepatitis A in Los Angeles County**

**Immediate Reporting**

Report suspected or confirmed hepatitis A infection in a patient who is homeless immediately to the LAC DPH Morbidity Unit by calling 888-397-3993. After hours call 213-974-1234. Please report while patient is still at facility.

**Routine reporting**

Report confirmed hepatitis A infection within 1 working day from identification (Title 17, CCR, Section 2500)

- by phone - call the Communicable Disease Reporting System at 888-397-3993, or
- by mail or fax - complete a Confidential Morbidity Report (CMR) Form available here [http://www.publichealth.lacounty.gov/acd/reports/CMR-H-794.pdf](http://www.publichealth.lacounty.gov/acd/reports/CMR-H-794.pdf) and follow fax and mail instructions.

Note that for residents of Long Beach and Pasadena, hepatitis A should be reported to the respective health department.

**Post-Exposure Prophylaxis Recommendations**

PEP should be given to contacts of hepatitis A cases within two weeks of the last exposure and, ideally, as soon as possible.18 As mentioned above, DPH will assist in the management of contacts including recommendations for PEP. PEP recommendations are detailed in the California Department of Public Health “Quicksheet.” Vaccination as PEP, is recommended to prevent illness and provide durable protection for persons aged 1 to 59 years. Immune globulin (IG) should be used to prevent illness for infants under 1 year of age, persons aged 60 years and over, those who are immunocompromised or who have chronic liver disease, and those for whom vaccine is contraindicated. Healthy persons ≥60 years of age should receive the vaccine in addition to IG for long-term protection.

GamaSTAN® S/D is the only IG product that is FDA approved for PEP. In July 2017, the recommended dose for IG for HAV PEP was increased by the manufacturer due to declining HAV
antibody levels in the U.S. blood supply. Consequently, the current recommended dose is 0.1 mL/kg, administered intramuscularly.

**Vaccination Recommendations**

Persons at risk for outbreak associated hepatitis A infections should be vaccinated to increase immunity among risk groups, prevent infection, and reduce the risk of transmission. Attaining 80% immunity to hepatitis A in a population can stop outbreaks. Therefore, DPH recommends hepatitis A vaccination for all persons who are homeless, IDUs, persons who have frequent close contact with the homeless or drug using populations, and for MSM. These recommendations overlap with and go beyond recommendations of the Advisory Committee on Immunization Practices (ACIP) and the Centers for Disease Control and Prevention (CDC). National and DPH recommendations are shown in Table 2.

<table>
<thead>
<tr>
<th>ACIP/CDC hepatitis A vaccine recommendations:</th>
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<tbody>
<tr>
<td>- All children at 1 year (12-23 months old)</td>
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<tr>
<td>- Persons at increased risk for hepatitis A infection</td>
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<tr>
<td>- Persons traveling to or working in countries that have endemic infection.</td>
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<tr>
<td>- Men who have sex with men</td>
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<tr>
<td>- Users of injection and non-injection drugs (excluding marijuana)</td>
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<tr>
<td>- Persons who have occupational risk for infection (e.g., who work with HAV infected primates)</td>
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<tr>
<td>- Persons with clotting-factor disorders</td>
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<tr>
<td>- Persons with chronic liver disease (e.g., hepatitis B or C infection)</td>
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In addition, LAC DPH recommends hepatitis A vaccine for:

- Persons experiencing homelessness
- Persons with HIV
- Persons who have close frequent contact with homeless persons or IDUs (e.g., food-handlers or persons who provide personal care, janitorial, maintenance, or sanitation services to these populations).

**Hygiene and Sanitation**

Good handwashing is important to prevent the spread of hepatitis A infection. Soap and water are preferred to hand sanitizer. If using the latter, alcohol concentrations of 70% or higher are most effective. Some cities in LA County are installing handwashing stations and restroom facilities that can be accessed by homeless persons but hygiene and sanitation are likely to remain a challenge for this population.

HAV is resistant to many commonly used commercial disinfectants. A 10% bleach (>5,000 ppm) solution is effective if it is left on the surface to be cleaned for one minute before rinsing with water. Two percent glutaraldehyde and a quaternary ammonium formulation containing 23% hydrochloric acid (toilet bowl cleaner) also have been shown effective. In several studies, phenolics, iodine-based products, alcohols, and solutions of acetic, peracetic, citric and phosphoric acids were ineffective. To assess other products, review the product label or product specification sheet for effectiveness against hepatitis A. Patient education materials, and information on hygiene and sanitation for hepatitis A is available on the LAC DPH hepatitis A website.

**Conclusions**

The successful control of hepatitis A in LA County will require continued collaboration between practicing clinicians and DPH to ensure that the diagnosis, reporting, investigation, and prevention of cases can be effectively performed. Providers are encouraged to visit the DPH hepatitis A webpage for resources for patients and providers. Clinical consultations regarding hepatitis A can be made by phoning 213-240-7941 (weekdays 8:30am-5pm).
References