Hepatitis A

Manitoba Health
Public Health
Communicable Disease Control Unit

Case Definition

Confirmed Case: IgM positive on single blood.

Clinical Case: Evidence of hyperbiliuria and/or jaundice in a person known to have had exposure to a laboratory-confirmed case of hepatitis A or someone living in an endemic area in the absence of other obvious causes.

Sporadic cases should be laboratory-confirmed whenever practical, while clinical case detection is appropriate for outbreak situations.

Reporting Requirements

- All hepatitis A IgM postive specimens are reportable by laboratory.
- All cases are reportable by attending health care professional.

Clinical Presentation/Natural History

Onset is usually abrupt with fever, malaise, anorexia, nausea and abdominal discomfort, followed within a few days by jaundice. The disease varies in clinical severity from a mild illness lasting one to two weeks, to a severely disabling disease lasting several months (rare). Convalescence is often prolonged. In general, severity increases with age, but complete recovery without sequelae or recurrences is the rule. Many infections are asymptomatic; many are mild and without jaundice, especially in children, and recognizable only by liver function tests. The reported case-fatality rate is low (<1/1,000) but higher case-fatality rates have been reported among children less than five years of age (1.5/1,000) and among persons over 50 years of age (27/1,000).

Etiology

Hepatitis A virus (HAV), a 27-nm picornavirus (i.e., a positive-strand RNA virus). It has been classified as Hepatovirus, a member of the family Picornaviridae.

Epidemiology

Reservoir and Source: Humans and rarely captive chimpanzees; less frequently, certain other primates. An enzootic focus has been identified in Malaysia, but there is no suggestion of transmission to humans.

Transmission: Person-to-person transmission or common-source exposure by the fecal-oral route. The infectious agent is found in feces, reaching peak levels one to two weeks before onset of symptoms, and diminishing rapidly after liver dysfunction or symptoms appear, which is concurrent with the appearance of circulating antibodies to HAV.

Occurrence:

General: Worldwide, sporadic and epidemic, with a tendency in the past to cyclic recurrences. In developing countries, adults are usually immune and epidemics of HA are uncommon. However, improved sanitation in many parts of the world is leaving many young adults susceptible, and outbreaks are increasing. In developed countries, disease transmission is frequent in day care centers enrolling diapered children, in household and sexual contacts of acute cases, and travellers to countries where the disease is endemic. Where environmental sanitation is poor, infection is common and occurs at an early age.

Epidemics often evolve slowly in developed countries, involve wide geographic areas and last many months. Common-source epidemics may evolve explosively. In the United States, nationwide epidemic cycles have been observed with peaks in 1961, 1971 and 1989. The disease is most common among school-aged children and young adults. In recent years, community-wide outbreaks have accounted for most disease transmission, although common-source outbreaks due to food contaminated by food handlers, contaminated produce and contaminated water continue to occur. In

approximately 25% of outbreaks, the source of infection is unidentified.

Common-source outbreaks have been related to contaminated water; food contaminated by infected food handlers, including sandwiches and salads that are not cooked or are handled after cooking; raw or undercooked mollusks harvested from contaminated waters; and contaminated produce such as lettuce and strawberries. Although rare, instances of transmission by transfusion of blood and clotting factor concentrates, obtained from donors during the incubation period, have been reported.

Canada: In 1997 there were 1,904 cases reported.

Manitoba: Hepatitis A is endemic, with the possibility of prolonged outbreaks occurring in northern reserve communities. In 1999 there were 12 cases reported.

Incubation Period: 15 to 50 days, depending on dose; average 28 to 30 days.

Susceptibility and Resistance: Susceptibility is general. Low incidence of manifest disease in infants and preschool children suggests that mild and anicteric infections are common. Homologous immunity after infection probably lasts for life.

Period of Communicability: Studies of transmission in humans and epidemiologic evidence indicate maximum infectivity during the latter half of the incubation period, continuing for a few days after onset of jaundice (or during peak aminotransferase activity in anicteric cases). Most cases are probably noninfectious after the first week of jaundice, although prolonged viral excretion (up to six months) has been documented in infants born prematurely.

Diagnosis

Diagnosis is established by the demonstration of IgM antibodies against hepatitis A virus (HAV IgM) in the serum of acutely or recently ill persons. HAV IgM may remain detectable for four to six months after onset.

Key Investigations

- History of international travel.
- History of contact with known case.
- History of food and water consumption.
- Determination of whether the case received vaccine or immune serum globulin (ISG).

Control

Management of Cases:

Treatment:

- Supportive

Public Health Measures:

- Routine precautions during the first two weeks of illness, but no more than one week after onset of jaundice; the exception being an outbreak in the neonatal intensive care setting where prolonged Routine precautions should be considered.
- Exclude from work involving food preparation, patient care or child care until one week after the onset of jaundice, or in the case of child care, until all contacts have received ISG (see below).
- Stress importance of handwashing on part of case.

Management of Contacts:

- Public Health will identify all contacts.
- Hepatitis A vaccine should be given as soon as possible. The value of vaccine beyond one week following exposure has not been studied. Until further data has been collected, a suggested cut-off time for the use of vaccine is two weeks following the last exposure during the infectious period. ISG should be utilized for infants too young to receive vaccine and for those immunocompromised persons who may not respond fully to the vaccine (vaccine can nonetheless be given simultaneously to immunocompromised persons). ISG should be given as soon as possible after a known exposure, preferably within 72 hours. Evidence suggests

minimal benefit from ISG given more than one week after exposure and no benefit with delays of two weeks or more following the last exposure. The recommended dose is 0.02ml/kg.

- The following groups should be considered for post-exposure prophylaxis:
  - all household (includes children of different households who play together frequently) and sexual contacts;
  - residents and staff of institutions for the developmentally challenged and inmates and staff of correctional facilities in which there is an outbreak.
  - food handler contacts:

    vaccine should be given to other food handlers in the establishment. Vaccine is usually not offered to patrons. It may be considered if a) the food handler was involved in the preparation of foods that were not heated; b) deficiencies in personal hygiene are noted or the food handler has had diarrhea; and c) the vaccine can be given within two weeks after last exposure.
  - certain day care contacts.

    Day cares accepting diapered children:

    If a case occurs in an attendee or staff, vaccine should be given to all staff and attendees. If two cases occur in non-attending family members of two families, this should also prompt immunization of all staff and attendees. In instances where the outbreak is detected three or more weeks after onset, or where three cases occur in attending family members of three different families, all family members of children younger than four, as well as staff and attendees, should receive vaccine.

    Day cares without diapered children:

    Vaccine need only be given to employees who work directly with the index case and close contacts (e.g., same room).
- Routine administration of vaccine is not recommended for health care workers in contact with an infected person or for workers in contact with a case in offices or factories. Vaccine use in schools for pupils or teachers in contact with a case is not indicated unless there is evidence that transmission is occurring in the classroom or school.
- **ISG and hepatitis A vaccine can be obtained using the Manitoba Health Biologics Order Form. Limited quantities of ISG are stocked at Churchill Health Centre. If you require product immediately, fax (204) 694-2380 or call (204) 633-2621 (Livingston Health Care Services Inc.). After regular hours contact the Medical Officer of Health on call at (204) 945-0183.**
- The importance of handwashing should be stressed.

Management of Outbreaks:

- Determine mode of transmission by epidemiologic investigation, whether person-to-person or by common vehicle, and identify the population exposed to increased risk of infection. Search for missed cases and maintain surveillance of persons exposed to the same risk in a potential common-source outbreak. Eliminate any common sources of infection.
- Make special efforts to improve sanitary and hygienic practices to eliminate fecal contamination of foods and water.
- Focal outbreaks in institutions may warrant mass prophylaxis with vaccine.
- Community-wide outbreaks may warrant consideration of mass hepatitis A immunization. Crowded living conditions, lack of running water, lack of sewage systems, history of previous outbreaks, two or more cases within 50 days of each other and incidence of cases ≥30/100,000, are Manitoba empirically derived criteria supporting immunization. Decisions to implement an immunization program should be made in consultation with Provincial and/or First Nations and Inuit Health Branch Medical Officers of Health.

- In reserve outbreak situations, several studies have indicated that almost all persons 15 years of ago or older are likely to be immune. Vaccine may induce protection as soon as three days after immunization.

Preventive Measures:

- Education of public about good sanitation and personal hygiene, with special emphasis on careful handwashing and sanitary disposal of feces.
- Provide proper water treatment and distribution systems, and sewage disposal.
- Oysters, clams and other shellfish from contaminated areas should be heated to a temperature of 85°-90°C (185°-194°F) for four minutes or steamed for 90 seconds before eating.
- Routine Hepatitis A vaccination is recommended for the following risk groups but is currently not provided by Manitoba Health except for persons exposed to a case, those receiving clotting factor concentrates, residents of communities where outbreaks are occurring, persons with chronic liver disease, (including chronic hepatitis due to hepatitis B and C), men who have sex with men, and intravenous drug users.

  High priority:

  - Persons who receive clotting factor concentrates.
  - Residents of communities with high endemic rates or recurrent outbreaks of hepatitis A infection.
  - All travellers/workers going to intermediate or highly endemic areas, including Africa, the Middle East, Asia, and Central and South America.
  - Residents and staff of institutions for the developmentally challenged.
  - Zoo-keepers, veterinarians and researchers who handle non-human primates.
  - Certain workers involved in research on hepatitis A virus or production of hepatitis A vaccine.

  Moderate priority:

  - Persons with life-style determined risks of infection, including those engaged in oral or intravenous illicit drug use in unsanitary conditions and male homosexuals with multiple sexual partners.
  - Persons who are at risk of life-threatening disease if infected. This includes persons with clinically significant chronic liver disease, including cirrhosis and chronic hepatitis from viral infection or other causes.

Additional Resources

- "FACTS ABOUT" sheet on hepatitis A from the book *Well Beings* published by the Canadian Pediatric Society.