



FIELD REPORT

Open Access

Hepatitis A: a summary of a reemerging public health menace and protective measures

Rifath Ali¹, Troy Rawlins², Ismail El Amouri³

¹Adjunct Faculty, Department of Safety, Security, and Emergency Management, Eastern Kentucky University, Richmond, KY

²Program Coordinator, Department of Safety, Security and Emergency Management, Eastern Kentucky University, Richmond, KY

³Department Chair, Program Director, Associate Professor, Program Advisor (N-Z), Department of Environmental Health Science and Medical Laboratory Science, Eastern Kentucky University, Richmond, KY

ABSTRACT

The hepatitis A virus (HAV) has re-emerged within the United States in the areas, such as Kentucky, Wyoming, Colorado, and Utah, among others. This outbreak has negatively impacted the health and safety of unaware and uneducated members of the general population. A lack of educational information from the reliable sources about hepatitis A has caused some alarm and undoubtedly increased exposure incidences among the general public. The HAV trend prompted this paper, which serves as supplemental informational designed to (1) provide general background information regarding the virus and (2) provide information to protect the general public from the exposure. Essentially, if one suspects they have been exposed, they should seek medical treatment.

ARTICLE HISTORY

Received February 25, 2019

Accepted April 10, 2019

Published July 17, 2019

KEYWORDS

Hepatitis; hep A; hepatitis A; exposure; prevention and protection measures

Introduction

Recent incidences of confirmed hepatitis A virus (HAV) exposures and infection diagnoses have increased in frequency within the United States (US). However, epidemiological levels of exposure from the disease can be traced back to at least 2016. According to O'Leary et al. [1] and Immunization Action Coalition articles [2], among others, hepatitis A infections in the US increased substantially in 2016 and 2017. Infections rose in 2016 from around 20 annually to 500, and then to 900 in the following year. This article analyzes articles concerning a current, relevant, public health issue, and compares those findings with recent historical records, immunization trends, and Centers for Disease Control and Prevention (CDC) reports.

While commonly found within the areas of the world with poor hygiene practices in food handling and preparation, surprisingly, hepatitis A has demonstrated no natural US boundaries when considered as an industrialized and educated society. Outbreaks have been identified within states, such as Kentucky, Wyoming, Colorado, and Utah [3]. O'Leary et al. [1] research indicated two of these outbreaks were foodborne and three of them

spread person-to-person. Even more surprisingly, the virus has spread rapidly within metropolitan areas in states where proper hygiene and food handling practices are thought to be the norm. For example, Moyer [3] identified cases in Detroit, Michigan where hepatitis A was responsible for over 770 infections within public populations since late 2016. San Diego, California has experienced 700 infections of hepatitis A during the same period [3]. Even Louisville, Kentucky, surrounding counties, and southern Indiana experienced outbreaks of hepatitis in 2018 [4]. Infection rates appear to be unrelated to victims' socioeconomic status, education, sex, race, or other population demographics, while impacting susceptible and diverse members of the general public, adults, and children alike. Since routine vaccination begun in the late 1990s, the Hepatitis A rate has declined in the U.S. by 95%. San Diego County normally averages 20 cases per year but saw an outbreak of 588 HAV cases that began late 2016. Hosseini and Ding [5] determined that there were no common drug, food, or beverages sources. The mode of distribution was likely direct person-to-person transmission. Led by a public health campaign by the health

Contact Rifath Ali ✉ rifath.ali@eku.edu 📍 304 N 3rd Street, Richmond, KY 40475.

department, an extension hygiene education and vaccination program brought the outbreak under the control [5].

Exposure and General Health Effects

Franco et al. [6] describes hepatitis A as a single-stranded RNA member of the viral hepatitis group and the most common cause of acute viral hepatitis worldwide. The HAV has a sturdy nature and can remain infectious outside the body on contaminated surfaces for several days [7]. The resistant HAV helps explain why hepatitis A exposure is most often transmitted via “fecal-oral” routes from an infected source individual or contact with a contaminated surface [7]. More directly, “fecal-oral” transmission indicates the act of ingesting food, water, or even ice contaminated with fecal matter (human stool or waste) from the individuals infected with the HAV. Although hepatitis A is usually self-limiting and the severity of illness is age-dependent, once the individual is infected, the incubation period to express symptoms is between 1 and 8 weeks, averaging 28 days [8,9].

The symptoms of an infected individual are problematic in that they are “general” or “malaise” in nature and often health dependent. Adults, about 7 in 10, are more likely to show symptoms than children. Some infected people may show no symptoms, or the symptoms are often ignored. Hepatitis A is an acute (short-lived) disease with common symptoms that include fatigue, loss of appetite, low-grade fever, sudden nausea and vomiting, jaundice (yellow skin or eyes), abdominal pain (right upper quadrant), and joint pain [10]. Less common, severe cases of hepatitis A infection can result in grave complications, such as acute liver and renal failure, pancreatitis, red blood cell aplasia (cessation of erythrocytes production), transient heart block, bone marrow aplasia (cessation of all blood cell production), and acute arthritis [11].

Older people who are infected by HAV often develop a symptomatic infection with sudden onset, fever, and jaundice that can last a couple months. Children will usually have asymptomatic infections and do not usually jaundice. Around 10% to 20% of symptomatic patients experience a prolonged or relapsing course of illness without chronic infection [12]. If anyone suspects they have been exposed to HAV and notice symptoms that persist, they should seek professional medical advice or treatment.

Protection and Protection Measures

There is a common saying “An ounce of prevention is worth a pound of cure.” This familiar adage is true concerning hepatitis A exposure, prevention, and protective measures of the source individual and victim. Prevention measures for the general population begin with “healthy habits,” such as proper hygiene and hand washing techniques. Proper hygiene involves washing hands with warm water and soap or alcohol-based hand sanitizers, which have been shown to reduce the likelihood of hepatitis A infections and transmission. Likewise, proper food handling and preparation techniques are also an effective measure to reduce hepatitis A infections. The most effective means of hepatitis A infection prevention, however, is through immunization.

Developed in 1995, according to the CDC, the hepatitis A vaccination series (immunization) is the most common and effective means to combat contracting and spreading the disease through direct contact with food and the environment. A study assessing immune response and the effect of a single dose of the HAV vaccination antibody even with periodic fever, aphthous stomatitis, pharyngitis, and adenitis patients was 97% effective in preventing infection [13]. In the US, hepatitis A vaccines are cost-effective, readily available, and are administered in a series of two shots. The vaccine consists of two doses that are typically given 6–12 months apart. Protection from HAV, however, initiates 1–2 weeks after the first dose has been administered, and continues for up to 20–25 years after the second dose [14]. The American Academy of Pediatrics recommends that all children, older than 1 year of age, should receive the hepatitis vaccine [15]. According to the Immunization Action Coalition, hepatitis A vaccination has proved to furnish short-term protection for between 94% and 100% of persons who take only the one vaccination dose. Adults need to be revaccinated if it has been more than 20 years since the previous vaccination [2].

Recommendations

Recent hepatitis A outbreaks are occurring in the regions throughout the United States, compelling local and state health departments to address hygiene issues in communities at large and within food-related businesses. Vaccination and education from the CDC and public health officials are essential to combat misunderstanding and lack of knowledge, and decrease exposure incidences.

With hepatitis A vaccination results demonstrated, the importance of members of the general public completing the series of two shots for ongoing protection is merited. Although a hepatitis A vaccination exists and has an associated campaign to emphasize proper hygiene techniques, many members of the US population are becoming infected at an alarming rate. It is, therefore, essential for the populace to educate themselves as to what the hepatitis A disease is, its symptoms, and how to prevent exposure or infection. Self-education and putting the above steps into practice may reduce the likelihood of exposure. Precaution needs to be taken to practice safety hygiene by using an alcohol-based sanitizer or washing hands frequently when in public. Likewise, everyone should ensure hepatitis immunization status and obtain the vaccination series if out-of-date or if traveling to the developing countries. Meanwhile, it is prudent to be aware of the symptoms and seek treatment from a health-care professional if symptoms manifest or persist.

References

- [1] O'Leary ST, Kimberlin DW, Maldonado YA. Update from the advisory committee on immunization practices. *J Pediatric Infect Dis Soc* 2018; 7(2):93–9. <https://doi.org/10.1093/jpids/piy028> (Accessed 26 January 2019).
- [2] Immunization Action Coalition (IAC). 2019. Available via www.immunize.org (Accessed 26 January 2019).
- [3] Moyer MW. A wave of resurgent epidemics has hit the U.S. *Sci Am* 2018; 318(5):44–57. <https://doi.org/10.1038/scientificamerican0518-44> (Accessed 26 January 2019).
- [4] Warren B. Kentucky's hepatitis A outbreak is the worst in the nation. 2018. Available via <https://www.courier-journal.com/story/news/local/2018/06/27/deadly-hepatitis-outbreak-worst-kentucky-history/737574002/> (Accessed 31 August 2018).
- [5] Hosseini M, Ding A. 2189. Hepatitis A outbreak in San Diego County, 2016–2017: a morphologic and epidemiologic review. *Open Forum Infect Dis* 2018; 5(Suppl 1):S646. <https://doi.org/10.1093/ofid/ofy210.1844> (Accessed 24 March 2019).
- [6] Franco E, Meleleo C, Serino L, Sorbara D, Zaratti L. Hepatitis A: epidemiology and prevention in developing countries. *World J Hepatol* 2012; 4(3):68–73. <https://doi.org/10.4254/wjh.v4.i3.68> (Accessed 24 February 2019).
- [7] Sattar SA, Jason T, Bidawid S, Farber J. Foodborne spread of hepatitis A: recent studies on virus survival, transfer and inactivation. *Can J Infect Dis* 2000; 11(3):159–63. Available via <https://www.ncbi.nlm.nih.gov/pubmed/18159284> (Accessed 23 February 2019).
- [8] Brundage SC, Fitzpatrick AN. Hepatitis A. *Am Fam Physician* 2006; 73(12):2162–8.
- [9] Ly KN, Kleven RM. Trends in disease and complications of hepatitis A virus infection in the United States, 1999–2011: a new concern for adults. *J Infect Dis* 2015; 212(2):176–82. <https://doi.org/10.1093/infdis/jiu834> (Accessed 23 February 2019).
- [10] Koff RS. Clinical manifestations and diagnosis of hepatitis A virus infection. *Vaccine* 1992; 10 Suppl 1:S15–17. Available via <https://www.ncbi.nlm.nih.gov/pubmed/1335649> (Accessed 23 February 2019).
- [11] Gilroy RK. Hepatitis A: Background, pathophysiology, etiology. *Medscape* 2017. Available via <https://emedicine.medscape.com/article/177484-overview#a6> (Accessed 23 February 2019).
- [12] Brundage SC, Fitzpatrick AN. Hepatitis A. *Am Fam Physician* 2006; 73(12):2165. Available via <http://www.aefa.es/wp-content/uploads/2014/04/Hepatitis-A-.pdf> (Accessed 24 March 2019).
- [13] Maritsi DN, Syrmou A, Vartzelis G, Diamantopoulos S, Tsolia MN. Immunogenicity and side-effects of the inactivated hepatitis A vaccine in periodic fever, aphthous stomatitis, pharyngitis, and adenitis patients. *Pediatrics Int* 2019; 61(1):104–6; <https://doi.org/10.1111/ped.13719> (Accessed 24 March 2019).
- [14] Immunization Action Coalition (IAC). Hepatitis A: Questions and answers -Information about the disease and vaccines. 2019. Available via <http://www.immunize.org/catg.d/p4204.pdf> (Accessed 26 January 2019).
- [15] Committee on Infectious Diseases. Hepatitis A vaccine recommendations. *Am Acad Pediatrics* 2007; 120(1):189–99; <https://doi.org/10.1542/peds.2007-1088> (Accessed 23 February 2019).
- [16] Viral Hepatitis. Guidelines and recommendations—Hepatitis A. CDC, 2016. Available via <https://www.cdc.gov/hepatitis/hav/guidelinesa.htm> (Accessed 26 January 2019).