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PUBLIC HEALTH

Health Advisory

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Recommendations for Adenovirus Testing and Reporting of Children with Acute Hepatitis of Unknown Etiology

Situational Update

The Madera County Department of Public Health requests your assistance in responding to concerns regarding clusters of children identified with hepatitis and adenovirus infection. A recent advisory sent out by the CDC highlighted a large children's hospital in Alabama with five pediatric patients who had significant liver injury, including three with acute liver failure, who also tested positive for adenovirus. Case finding efforts at this hospital identified four additional pediatric patients with hepatitis and adenovirus infection for a total of nine patients admitted from October 2021 through February 2022; all five that were sequenced had adenovirus type 41 infection identified. A possible association between pediatric hepatitis and adenovirus infection is currently under investigation. Cases of pediatric hepatitis in children who tested negative for hepatitis viruses A, B, C, D, and E were reported earlier this month in the United Kingdom, including some with adenovirus infection [1].

Background

Hepatitis

Inflammation of the liver that can be caused by viral infections, alcohol use, toxins, medications, and certain other medical conditions. Signs and symptoms of hepatitis include fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, dark urine, light-colored stools, joint pain, and jaundice [2].

Adenoviruses

Double-stranded DNA viruses that spread by close personal contact, respiratory droplets, and fomites [3]. There are more than 50 types of immunologically distinct adenoviruses that can cause infections in humans. Adenoviruses most commonly cause respiratory illness but depending on the adenovirus type they can cause other illnesses such as gastroenteritis, conjunctivitis, cystitis, and, less commonly, neurological disease [3]. There is no specific treatment for adenovirus infections.

Adenovirus Type 41

Commonly causes pediatric acute gastroenteritis, which typically presents as diarrhea, vomiting, and fever; it can often be accompanied by respiratory symptoms [4]. While there have been case reports of hepatitis in immunocompromised children with adenovirus type 41 infection, adenovirus type 41 is not known to be a cause of hepatitis in otherwise healthy children [5, 6].

Actions Requested of Clinicians

Testing

- Clinicians should consider adenovirus testing in pediatric patients with hepatitis of unknown etiology. NAAT (e.g. PCR) is preferable and may be done on respiratory specimens, stool or rectal swabs, or blood.
- Anecdotal reports suggest that testing whole blood by PCR may be more sensitive than testing plasma by PCR; therefore, testing of whole blood could be considered in those without an etiology who tested negative for adenovirus in plasma samples.

Notifications

- MCDPH and the CDC are requesting notification from clinicians or state public health authorities of children <10 years of age, AST or ALT >500 U/L, who have an unknown etiology for their hepatitis (with or without any adenovirus testing results, independent of the results) since October 1, 2021.
- Please notify MCDPH by email at CDreporting@maderacounty.com, or by fax at (559) 674-7262, and the CDC at ncirddvdgast@cdc.gov, for any cases meeting the above criteria or with any related questions.
- If patients are still under medical care or have residual specimens available, please save and freeze them for possible additional testing and contact CDC at ncirddvdgast@cdc.gov for additional instructions.

Link to the full CDC Health Advisory:
https://emergency.cdc.gov/han/2022/pdf/CDC_HAN_462.pdf

For More Information

- Division of Viral Hepatitis | CDC
- Adenovirus | CDC

Categories of Health Alert Messages:

Health Alert: Conveys the highest level of importance; warrants immediate action or attention
Health Advisory: Provides important information for a specific incident or situation; may not require immediate action
Health Update: Provides updated information regarding an incident or situation; unlikely to require immediate action
Health Information: Provides general health information which is not considered to be of emergent nature

References

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2. Hepatitis Webpage. Centers for Disease Control and Prevention. Available from: https://www.cdc.gov/hepatitis/abc/index.htm

3. Adenoviruses Webpage. Centers for Disease Control and Prevention. Available from: https://www.cdc.gov/adenovirus/index.html

4. Kang G. Viral Diarrhea. International Encyclopedia of Public Health [Internet]. Elsevier; 2017. P. 260-7. Available from https://www.sciencedirect.com/referencework/9780128037089/international-encyclopedia-of-public-health

5. Munoz FM, Piedra PA, Demmler GJ. Disseminated Adenovirus Disease in Immunocompromised and Immunocompetent Children. CLIN INFECT DIS. 1998. Nov;27(5):1194-200. https://doi.org/10.1086/514978

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