
During the period 5-24/2/1431 H (20 January to 8 February, 2010), 41 cases of Hepatitis A were reported from Alhysoniah village in Eqlat-Sqoor, Al-Qassiem Region. All the cases had appeared in Alhysoniah village, and 27 (90%) were attending Alhysoniah school at different grades, elementary, intermediate and secondary.

A case control study was conducted to describe this outbreak, identify possible risk factors associated with its occurrence and provide recommendations for disease control and prevention. A case was defined as any person living in Alhysoniah village and presenting at one of the health institutes with jaundice and/or confirmed by laboratory tests during the period between 5 to 24/2/1431. A control was defined as any person living in the same area who never had jaundice symptoms (had not suffered from hepatitis A clinically) before 24/2/1431 H. One control was selected for each case. Data was collected by face to face interviews and documented on a structured data collection instrument. Odds ratios and 95% confidence intervals were calculated to investigate associated risk factors.

We were able to identify and interview 30 cases that fulfilled the criteria of the case definition. All cases were Saudis. There were 25 (83.3%) males and 5 (16.7%) females (Male: Female ratio 1:4.99). Their ages ranged from 3-19 years, with a mean(± SD) age of 13.6 (± 4.1) years.

All the cases reported yellowish discoloration of the eyes (Jaundice), dark urine (96.7%), Fever (93.3%), gastrointestinal symptoms such as nausea, vomiting, abdominal pain and diarrhea (83.3%), general weakness (83.3%), headache (46.7%) and itching (4.6%).

The epidemic curve showed the occurrence of a single peak, suggesting a point source epidemic (Figure 1).

Risk factors identified were attending Alhysoniah School (Odds Ratio (OR) = 6.88, 95% CI=1.71 – 27.75), drinking water from the school cooler (OR = 3.60, 95% CI= 1.22-10.64) and contact with a jaundice case (OR=3.50, 95% CI=1.2-10.19). Samples obtained from the water tank in Alhysoniah school was positive for Escherichia coli.

Only 8 (26.7%) cases were tested for IgM and all showed positive results. Regarding vaccination status, none of the cases or controls had ever received vaccine against HAV.

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Editorial Notes: Hepatitis A is endemic in many parts of the world, including Saudi Arabia, where viral hepatitis A is a major cause of morbidity.\textsuperscript{1,2} In a study investigating the age related prevalence of antibody to HAV (Anti-HAV) among 4375 Saudi children, 1-10 years of age, a prevalence rate of 52% was reported.\textsuperscript{3} This relatively high prevalence rate among Saudi children is met by an overall prevalence rate of >90% among Saudi adults,\textsuperscript{4} confirming the high endemicity pattern of HAV in the Kingdom.

The clinical presentation of the majority of cases in this outbreak points to hepatitis A infection, with typical textbook symptoms.\textsuperscript{5}

In this study, an environmental factor (water supply) played a major role in disease causation. It is common behavior among children to drink directly from home taps and school coolers. Drinking water from the school coolers increased the risk of acquiring HAV infection almost three and half times (OR = 3.60, 95% CI = 1.22-10.64), which represents the most likely possible common source of this epidemic.

It needs to be stated that, if the shallow wells which represent the only source of water supply to Alhysoniah village had been infected, the number of cases would have been much more widespread among family members who were not attending school.

All people in Alhysoniah village received free government water which is brought to the households by tank vehicles. Drinking water from tap at the houses or in streets was not associated with acquiring the disease. This proves that the main water supply to the village is unlikely to be the cause of this epidemic.

Close contact between students in school environment, particularly in the male section, low socioeconomic status, increased risk of infection among those in contact with a jaundiced patient, all are supportive of person-to-person transmission.

This outbreak is different from an outbreak of hepatitis A that occurred in 2001 at a rural community in Jazan, in which person-to-person transmission was implicated. This outbreak is example of HAV outbreak at community level which is the water tank supply in Alhysoniah school.

General measure for hepatitis A prevention include hygienic and sanitary measures to prevent transmission of any enteric illness. In household settings, good personal hygiene, hand-washing

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Figure 1: Epidemic curve of Hepatitis “A” Cases, Alhysoniah Village, Eqlat Sqoor, Al-Qassiem Region, 2010.
Hepatitis “A” Outbreak in Alhysoniah Village, cont...

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and attention to proper food preparation are important in reducing the risk of transmission. At the community level, provision of safe drinking water and proper disposal of sanitary waste will reduce the incidence of hepatitis A. Good hand washing practices and personal hygiene among food handlers and school cleaners are vital.

Immunoglobulin (IG) mass immunization applied by the preventive department of AlQassim health Directorate was efficient in controlling the outbreak. This was able to reduce the incidence of HAV cases but could not stop new cases from appearing. Many studies consider passive immunization with immunoglobulin as the first choice in prevention and control of HAV epidemics and as a post exposure prophylaxis.6

Although IG is effective to control and prevent HAV infection, it is not recommended in areas where HAV infection is endemic. The effectiveness of the immunization lasts only for a few months, so it is required to be re-administered every three to six months. Many studies agree on not using IG immunization for several reasons including the cost, pain at the injection site, need for re-administration and risks of blood derived infection.7

The best methods of control and prevention in endemic areas depend on elimination of the source of infection and identification of the mode of transmission. Community and school health education for hygienic practices may be able to cease and prevent HAV transmission in this area.

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Foodborne Salmonella Outbreak in Khaiber City, cont....

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infection are mainly meat, poultry, eggs, milk and water. Clinical features of Salmonellosis appear within 6-72 hours of infection, and are characterized by fever, abdominal cramps, diarrhea, nausea, and sometimes vomiting. In children and very old people, dehydration may become severe and life-threatening.1 It is more common in the summer, since high temperatures, in the presence of unhygienic practices, provide an opportunity for the microbes to multiply and produce toxins.1

In this outbreak, isolation of Salmonella from 6 patients and 2 food items (mayonnaise salad and muttabal) provides sufficient evidence that Salmonella enteritidis was the causative organism. However, their absence from samples taken from food handlers raises the question about the source of Salmonella infection, whether it came from raw materials used in food preparation, or the food handlers themselves.

Mayonnaise salad was locally prepared at the restaurant, using eggs as the main ingredient. It is well known that normal appearing eggs can contain Salmonella bacterium and can cause illness if eaten raw or undercooked. The CDC estimates that 75% of all Salmonella outbreaks are due to raw or inadequately cooked shell eggs.2

In Saudi Arabia, many food borne outbreaks have been associated with restaurant prepared mayonnaise.3,5

During data analysis two food items were identified that may be labeled as the source of the outbreak, the mayonnaise salad and the muttabal. However, since eggs are not used in muttabal preparation, this points to the role of food handlers in dissimulation of infection, whether by acting as a reservoir of the bacteria, or being responsible for cross-contamination between the two food items.

It was recommended to stop the practice of local mayonnaise preparation at the restaurant and to use packed commercial pasteurized mayonnaise to avoid such outbreaks. The restaurant supplies of raw food items should be stored in refrigerators immediately after purchasing.

References: