

# Hepatitis "A" outbreak in Bisha, 2003.

On 23/3/1424 (June 25<sup>th</sup>, 2003) the Health Directorate in Bisha reported an unusually large number of children with Hepatitis A (HAV). A team from the Field Epidemiology Training Program (FETP) investigated this outbreak. By the time the team arrived to Bisha, a mass vaccination campaign with IG had already been carried out. The epidemic curve shows a peak every 3-5 weeks (Figure 1).

The team conducted a case control study to identify associated risk factors. A case was defined as any person living in the catchment areas (Bisha Governorate) and presented with Jaundice and/or IgM antibodies against HAV in the serum during the period from 27/10/1423 to 1/4/1424. A control was defined as any person who never had jaundice symptoms before 01/04/1424. One control was selected for each case within  $\pm 2$  years of age.

We were able to identify and interview 114 cases and 114 controls. All were Saudis. The ages of cases ranged between 2-25 years (mean=9.8, SD  $\pm$  4.67). Symptoms reported by cases were jaundice 89.5%, abdominal discomfort 87.7%, anorexia 81.6%, dark urine 74.6%, fever 73.7%, malaise 56.1%, nausea 54.4%, vomiting 54.4%, headache 42.1%, joint pain 26.3%, diarrhea 23.7% and skin itching 21.9%.

Among the cases, 92 (80.7%) were school students. Those who attended schools were three times at risk to acquire HAV (OR=3.2, 95% CI=1.7-6.0) and this was statistically significant; 98 (98.9%) recalled exposure to a case, compared to 69 (63.9%) controls. Contact with a case had five times risk (OR=5.0, 95% CI=2.3-11.4) and this was statistically significant. Hand washing with soap and water was associated with decreased risk of infection (OR=0.28, 95% CI=0.28-0.5), and was statistically significant.

Effectiveness of vaccination of the population at risk was clearly identified. Only 18 cases (15.8%) had been vaccinated, compared to the majority of controls (93%). Those who received the vaccine were 99% protected (OR=0.01, 95%CI=0.01-0.04) and this was statistically significant.

There was no community water

supply in the 28 villages where the cases had been reported. People mainly depend on "desalinated" governmental water delivered by tankers for their daily and routine use. The schools contracted with companies to supply desalinated sea water delivered by tank vehicles, and sold bottled water for drinking. There was no general sewage system, each house had its own dug well for sewage disposal. The majority (64.9%) of cases and controls used bottled water for drinking. When comparing the role of each source of drinking water in acquiring infection the crude OR was neutral (OR=1.0, 95%CI=0.6-1.7). The effect of using other sources of water for cooking was also neutral (OR=1.1, 95%CI=0.7-1.8).

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**Editorial note:** Hepatitis A is an acute, self-limiting disease of the liver caused by Hepatitis A Virus.<sup>1</sup> It is particularly common in poor sanitary conditions.<sup>1,2</sup> It is a contagious disease that spreads by the fecal-oral route.

After an incubation period of 15-50 days, patient develops fever, malaise, anorexia, diarrhea, vomiting and abdominal right upper quadrant pain, which usually precede signs of immunogenic hepatotoxicity such as jaundice and dark urine.<sup>3</sup> The vast majority of patients fully recover, and it does not lead to chronic disease.<sup>1</sup>

HAV infection occurs worldwide, affecting 1.5 million people annually,

and accounting for 20 to 40% of cases of viral hepatitis in the United States.<sup>4</sup> It is a major cause of morbidity in the Kingdom. In 1997, the overall seroprevalence of HAV in the Riyadh area was 30.2% among children aged 6 months to 15 years.<sup>5</sup>

Frequent health education campaigns to improve personal hygienic practices are recommended especially at schools focusing on the importance of hand washing. Mass Active vaccination campaign with Immune Globulin for direct and indirect contacts. Monitoring of the quality of the water provided by tankers should be done by the local municipality.

## References:

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Figure 1: Distribution of Hepatitis A cases by date of onset reported from Bisha Governorate during 2002 and 2003.

