Hepatitis A in Southwest Riyadh and Immune Globulin Administration to Household Contacts

In 1995 the epidemiologist at a southwest Riyadh hospital noticed an increase in the number of newly diagnosed cases of unspecified hepatitis. Although these cases were suspected of being hepatitis A (HA), serologic confirmation had not been done and immune globulin (IG) had not been administered to household contacts. An epidemiologic investigation was begun to identify the causative agent, estimate the size of the outbreak, and to identify the risk factors that were maintaining transmission in the area.

A case of hepatitis was defined jaundice and one or more of the following signs and symptoms: dark urine, nausea, vomiting, abdominal pain, or increased serum transaminase levels between October 1994 and November 1995 in a person living in southwest Riyadh. Confirmed HA was a hepatitis case with anti HA virus (HAV) IgM detected. Hepatitis cases were found by reviewing case reports in the selected primary health care centers (PHCC), logbooks in school health clinics, and private clinics. Additional unreported cases were found among family members of reported cases during household interviews. Exposure histories of confirmed HA cases were compared to control-persons selected by systematic random sampling of families registered at the PHCC in same catchment areas as confirmed cases.

From October 1994 to November 1995, 203 cases of hepatitis were identified and 154 (75%) had been reported through the Riyadh health surveillance system. Of 84 hepatitis cases with sera submitted for anti HAV IgM, 71 (85 %) were serologically confirmed as HA. All except two were Saudi children under 15 years of age (median 7 years). Interviews were completed for 114 hepatitis cases in 40 extended families with one or more confirmed HA cases. IG had not been administered in any of these families, and the secondary attack rate ranged from 10% to 75%. Up to 12 secondary cases occurred in one extended family. The median interval between the onset of the first hepatitis case in the family and the onset of symptoms in the next case in the same household was 21 days (range 1 to 42). The median duration between date of onset of symptoms and drawing the blood sample for HAV testing was 8 days (range 0 to 109). The delay between drawing the blood sample and reporting the result of the HAV test back to the selected PHCC was 36 days (range 8 to 89). This resulted in a median delay between onset and reporting of laboratory results of 51 days (range 18 to 374). Before July 1995, IG had not been given to family contacts because secondary cases had already occurred by the time the laboratory confirmation of HA was made. Thereafter, IG was given to family contacts of any hepatitis case when the patient first presented to PHCC with acute symptoms. Numbers of reported hepatitis cases decreased after this change in control (Figure).

Confirmed HA case persons were more likely to share glasses for drinking water with a known case of HA (OR 14, 95% CI 1.6-337). There were no differences between cases and controls by socioeconomic status, family size, education of parents, management of household sewage, household drinking water, or indicators of contact between children in the house.

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Editorial note: Viral hepatitis is a reportable disease in the Kingdom of Saudi Arabia. Patients with clinical hepatitis are usually referred from PHCC to hospitals for laboratory investigations. Once HA is confirmed, the PHCC nearest to the residence of the patient is informed for institution of public health control measures. The propagated pattern, the high secondary attack rate and the lack of evidence for water or food borne transmission indicates that person to person spread was maintaining this out break. Since indirect or direct personal contact is difficult to manage within a household, effective control is accomplished through active or passive immunization. The MOH provides IG for passive immunization of household contacts as the principal control measure for HA. An effective vaccine is also available commercially for active immunization against HA.

In order to be effective IG must be given to contacts within 14 days of the onset of the first hepatitis case in the household. In this outbreak, the long delays between onset of illness and laboratory confirmation hindered effective use of IG to control secondary spread in families. Giving IG to family contacts before confirmation resulted in a decrease in hepatitis cases.

Figure. Hepatitis cases by week. Southwest Riyadh, 1994-1995.