

Epidemiological investigation of the jaundice outbreak in Lalkuan, Nainital district, Uttarakhand.

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Epidemiological investigation of the jaundice outbreak in Lalkuan, Nainital district, Uttarakhand.

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Abstract

Background: In March 2013, cases of acute hepatitis were reported from Lalkuan, Nainital district. We investigated the outbreak to identify the source of infection and to facilitate control measures.

Objectives: To study the distribution of hepatitis cases, to find the source of infection, and to initiate the control measures in the affected area.

Materials And Methods: We defined a case of acute hepatitis as those cases that had jaundice with at least one of the following symptoms: Dark urine, fever, pain in abdomen, vomiting, and loss of appetite in the affected area between January and March 2013. Door-to-door survey was carried out. Thirteen blood samples were randomly collected from jaundice cases for immunoglobulin M (IgM) antibody for hepatitis A virus (HAV) and hepatitis E virus (HEV). Water samples were collected to test residual chlorine.

Results: Total 2,785 individuals were surveyed; of which 240 were suffering from acute viral hepatitis (attack rate (AR) = 8.61%). Out of 13 serum samples, 10 were found positive for HEV IgM antibodies and three cases had IgM antibodies for both HAV and HEV, which confirmed a hepatitis E outbreak. The difference in attack rate of hepatitis of both the sexes was statistically significant ($P < 0.001$). The attack rate was significantly higher in age groups >12 years of age ($P < 0.001$). Environmental investigation also confirmed the sewage contamination of drinking water in the distribution system. The attack rate was much higher (29.4%) among those who were exposed to the leaking pipeline than the nonexposed ($\chi(2) = 574.26, P < 0.01$).

Conclusion: HEV was confirmed as the major etiological agent in this outbreak that was transmitted by contaminated drinking water. The recognition of early warning signals, timely investigation, and application of specific control measures can contain the outbreak.

References

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