Hepatitis E in urban and rural Saudi Arabia

A newly developed EIA (Abbott) for antibodies to hepatitis E virus (anti-HEV) was used to compare HEV exposure in Riyadh and Gizan.[1] Riyadh is an urban area with modern piped water and sewage disposal, whereas Gizan is rural, with a variety of water and sewage disposal systems ranging from primitive to modern.

Among 630 Gizan residents, anti-HEV prevalence was 14.9%, compared with 8.4% among 788 Riyadh residents (prevalence rate [PR]=1.8, 95% confidence interval [CI] 1.3-2.4). Among 1- to 12-year-old children, anti-HEV prevalence was 5.5% in Gizan and 1.2% in 243 Riyadh (PR=4.5, 95% CI 1.2-16.3). Among adults (13 years and older), differences between 465 Gizan residents (prevalence=18.5%) and 545 Riyadh residents (prevalence=11.5%) was less extreme (PR=1.6, 95% CI 1.2-2 1).

In both areas, prevalence was higher in males than in females (Gizan: 17.9% and 11.5%, PR=1.7, 95% CI 1.2-2.5; Riyadh 10.7% and 5.7%, PR=1.9, 95% CI 1.1-3.1). All subjects with anti-HEV lacked anti-HAV IgM and anti-HBc IgM.

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Editorial note: The age-specific anti-HEV prevalence rates have three principal components: the yearly incidence (exposure) rates throughout the lifetime of the population, the differences in incidence rates by age, and the accumulation of seropositive individuals over total years of life. If we assume that the first two factors have been constant and that anti-HEV persists for several years, an average annual incidence rate may be computed from the seroprevalence rate and the mean age of the population. Under these assumptions, the average annual incidence rate for HEV is 81 per 10,000 persons per year for Gizan children and 17 per 10,000 for Riyadh children. Since the duration of anti-HEV is not established, similar estimates in adults would be inaccurate.[2]

The estimated incidence rates in children provide an estimate of current risk in HEV transmission. In a population of 100,000 Gizan children, 810 would have new HEV infections each year. However, a proportion of these infections in children may be subclinical and therefore go unrecognized.

Hepatitis resulting from HEV infection should be detected through routine reporting. Patients with acute clinical hepatitis should be reported. Tests for hepatitis A (anti-HAV IgM) and hepatitis B (anti-HBV core IgM) are available. Patients with negative results to these two tests should be reported as non-A non-B hepatitis. If additional testing for anti-hepatitis C is negative, HEV infection may be suspected. A seroprevalence study of HEV in Saudi Arabia done at the Riyadh Military Hospital among blood donors showed a prevalence rate of 7.1%.[3]

Hepatitis E was first recognized in epidemics and sporadic cases related to contaminated water supplies and low socio-economic status.[4] The higher exposure rate of Gizan children compared with children in Riyadh is consistent with this pattern. However, higher prevalence in males suggests that other factors are operating. Improvement in water supplies, sewage disposal and hygiene should be effective in lowering HEV incidence.

References

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Plague in India

(Continued from page 1)

of pneumonic plague, persons occupying the same house or a closed space or with face-to-face contact with pneumonic plague patients should be provided as chemoprophylaxis tetracycline, 2 grams daily. Plague outbreaks associated with domestic rats (urban plague) may be controlled with insecticide to kill fleas, followed by rat control.[4] Because wild rodent reservoirs of sylvatic plague are widespread and diverse, control of sylvatic plague is not practical.

The World Health Organization advises travelers arriving from potentially infected areas that any illness presenting within seven days of leaving the area should be brought to the attention of a physician for diagnosis. If plague is suspected, contacts need to be notified and, if necessary, receive prophylaxis or treatment.

In addition, Saudi Arabia has taken several measures to prevent extension of the epidemic into the Kingdom. Initially, persons arriving from India were given a medical examination and placed under surveillance for six days. Those who developed symptoms compatible with plague were placed in isolation. When the outbreak extended from Surat to other areas of India, travel to and from India was restricted. All health facilities were prepared to meet the demand for diagnosis and treatment of plague. International health regulations to keep ships and ports free of rodents and ectoparasites were applied to ships arriving from India.

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