

Hepatitis E Virus Infection: A Neglected Problem in Our Region

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Hepatitis E is one of the most important infectious problems in developing countries as other oral-fecal transmitted infections^(1, 2). Hepatitis E virus (HEV) infection is enterically transmitted and widely spread in many tropical and subtropical countries. Hepatitis E is an important public health concern in many developing countries of Asia and Africa where environmental sanitation facilities are poor⁽³⁾. Large outbreaks of hepatitis E were observed in, India, Pakistan, Nepal, Myanmar, China⁽⁴⁾, in East Africa which affecting the Ethiopian refugees in Somalia and Sudan⁽⁵⁾, and Central Asia⁽⁶⁾. Usually hepatitis E occurs in localities with a high population density, lowlands, and valley areas. The incidence and prevalence rate of HEV infection is underestimated due to unavailability of laboratory services in endemic territories. It is believed that in India at least one-half of acute sporadic viral hepatitis cases in adults are etiologically associated with HEV⁽⁷⁾.

In endemic areas general sanitation is poor, so HEV spreads through contaminated water sources frequently and non-human HEV reservoirs are very probable. Under natural conditions, fecally contaminated drinking water seems to be the principle vehicle of HEV transmission. Almost all large outbreaks or epidemics of hepatitis E were caused by the consumption of contaminated water. In particular, epidemic situations often arise during the rainy seasons or floods when sewage waters gain access to open water reservoirs⁽⁸⁾. Food-borne outbreaks occur less frequently and usually involve fewer people. Contact or person-to-person transmission is known to exist, particularly during or after big epidemics, but occurs at a lower rate

when compared with other enteric viral infections (e.g. hepatitis A)⁽⁹⁾. In non-endemic areas and in industrialized countries, travelers to endemic regions are at major risk of HEV infection (imported cases), but sporadic cases of acute hepatitis E without an implicated travel history have also been reported in Europe and the United States^(10, 11).

There are some reports regarding HEV infection in our region. Iran is located between Iraq and Turkey in the west and Afghanistan and Pakistan in east. On two sides of our border, we have war-like situation. Due to damage of water supply infrastructure and its contamination with sewage, the reported cases in general population and military personnel are a serious health problem. In 2004, there were some reports of HEV infection outbreaks in hundreds of Iraqi people in Sadr, Mahmodiya. The health condition in Iraq is catastrophic regarding low security and problems in social and water safety. WHO had reported thousands of cholera infected cases in September 2007 in Iraq which reveals the low access of people to safe water in Iraq. The infrastructure of water supply has totally damaged as a result of war.

Transmission of HEV occurs primarily by the fecal-oral route through contaminated water supplies in developing countries. Now, less than 40% of Afghans have access to safe drinking water. Soldiers from western countries are at risk of acquiring HEV infection in the region. Epidemic hepatitis E has been reported in military personnel in Pakistan and in this epidemic, 95% of patients with acute hepatitis had serologic evidence of acute hepatitis E whose source was fecal contamination of a water system, but the prevalence of anti-HEV in

this population before the outbreak was estimated to be 30%. On the other hand, military persons may drink unhealthy water in remote areas, therefore they had risk for hepatitis E infection ⁽¹²⁾.

Iran is a developing country in Asia, which is expected to have a high probability of hepatitis E occurrence. In Iran, some outbreaks had been reported previously ⁽¹³⁾. The first report of epidemic of HEV infection was reported by Hatami in 1991 from Kermanshah that had some mortality in pregnant. At the same time, there was another report from Fereidoon-Shahr, Isfahan with more than 100 cases. In 1992, about 154 cases were reported from Lordegan (Southwest of Iran) with a mortality of two pregnant cases ⁽¹⁴⁾. In a study in blood donors, 7.8% were anti-HEV antibody positive ⁽¹⁵⁾. The prevalence of more than 5% correlates with the prevalence of endemic areas. The obtained value is higher than that obtained in Israel (Jews: 2.8% and Arab: 1.8%) ⁽¹⁶⁾ and Ankara, Turkey (3.8%) ⁽¹⁷⁾, but less than values of Iraqi-Kurdish refugees (16.4%) ⁽¹⁸⁾ and general population in Pakistan (17.5%) ⁽¹⁹⁾.

Iran was accounted as endemic country for hepatitis E and its seroprevalence increased significantly with age, from 3.3% in subjects less than 30 years of age to 37.5% in individuals of 50 years ^(20, 21). In Iranian soldiers, the prevalence was 1.1% which was much lower than other evidence. What are the reasons? I believe that improvement in sanitation and water supply has decreased the prevalence of HAV and HEV infections in young people in Iran ⁽²²⁾. A report from general population in Mazendaran (North of Iran) showed that 1.1% of children younger than 10 years old and 7.2% of population between 20 and 25 years old had anti-HEV IgG antibody. The prevalence was more common in rural areas, more dense families, and low educational level ⁽²³⁾. In another study in blood donors from Tabriz (Northwest of Iran), in blood donors the prevalence of anti-HEV IgG was 7.8% (from 3.3% in subjects under 30 years of age to 13.7% in individuals of 50 years and higher) ⁽²⁰⁾, which is generally higher than figures reported from developed countries (0.4-3.9%) ^(24, 25); although lower than those from other countries of the Eastern Mediterranean region where reports of anti-HEV have been observed ⁽²⁶⁾. In hemodialysis patients from Tabriz, 7.4% had anti-HEV IgG antibody ⁽²¹⁾. The prevalence of anti-HCV IgG antibody in cirrhotic cases was 6% and in healthy controls was 5% ⁽²⁷⁾. Another study from East Azerbaijan showed that 27.5% of patients with chronic liver disease and 19.7% of controls had anti-HEV IgG antibody that showed different epidemiology of

infection in the country ⁽²⁸⁾.

Iran is a country with few suspected outbreaks of HEV [13]. A population-based study indicated that the prevalence rate of anti-HEV IgG among healthy population was 9.6% ⁽²⁹⁾. In Iran, large cities have better public health services, such as clinics, municipal water and sewage systems, possibly explaining the reduced risk of infection.

I should emphasize here that HEV infection should be considered in any cases with viral hepatitis without evidence of HAV and HBV infections in our region. Traveling to Iraq, Pakistan, and Afghanistan will be important in approach to cases with clinical symptoms of acute viral hepatitis. Precautionary recommendation should be given to travelers to these countries. UN agencies should help these countries by funding and donating materials for health education campaign and provide water and sanitation measures.

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