Iranian Journal of Virology 2009;3(1): 33-35
©2009, Iranian Society for Virology

Short Communication

Seroepidemiology of Anti-HEV IgG in Healthy Men Blood Donors in Kerman, 2007-2008

Arabzadeh SA[1], Zahedi M[1]*, Mollaei H[1], Aghaie-Afshar A[1]

1. Faculty of medical Science Kerman University, Kerman, Iran.

Hepatitis E is an important public health problem in many developing countries. The disease generally affects young Adults. The causative agent of Hepatitis E, Hepatitis E virus (HEV), is a single-stranded positive-sense RNA virus without an envelope (1). HEV is generally transmitted by fecal-oral route. The genomic RNA of HEV is about 7.5 kb with three open reading frames (ORFs). ORF1 is predicted to encode viral nonstructural proteins, ORF2 encodes the putative capsid protein, and ORF3 encodes a cytoskeleton-associated phosphoprotein (2, 3). HEV was originally classified as a calicivirus, but recent data showed that HEV does not share some common important features with caliciviruses. It was recently declassified from the Caliciviridae family and remains unclassified (4).

Iran is a part of developing Asia with high incidence and prevalence of type A hepatitis, therefore it is expected to have incidences of Hepatitis E. Unfortunately, there has been no documented study to explain the statistical characteristics of this infection in the general population. We studied the level of seropositivity of a group of blood donors in a cross-sectional study in Kerman during 2007-2008 (5).

Among the 400 plasma samples analyzed, a total of 31 were found to be positive for anti-HEV IgG, corresponding to a prevalence rate of 7.7%, however, no significant difference was observed (P = 0.45).

No data on type of job activities of the donors were available, but it was interested to know whether some of them had occupations involved in animal contacts. Another possibility is that sanitation may play a more prominent role in urban than rural areas. None of the positive donors had recently traveled to the endemic regions, but they might have traveled outside Kerman long time ago and

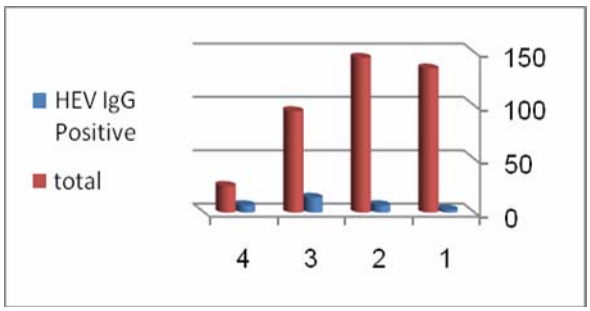


Fig. 1: Frequency distribution of anti HEV seropositivity in association with age in 400 men blood donors.

***Corresponding author:** Mohammad Javad Zahedi, chancellor of Kerman University of medical scinces, associated professor of Gastroenterology, Neurophysiologic Research center, Kerman Iran.
Tel: (+98)913-140 12 08 Fax: (+98)341-322 16 71
Email: zahedimj@yahoo.com

[Downloaded from journal.isv.org.ir on 2026-11-11]
[DOI: 10.21859/isv.3.1.34]

Table 1: Age-specific prevalence of hepatitis E virus (HEV) IgG antibodies in subjects from rural and urban area

Age group(years)	Urban area no.pos./no.test.(%)	Rural area no.pos./no.test.(%)
20-30	3/98(3%)	0/37(0%)
30-40	4/123(3.2%)	3/22(13.6%)
40-50	9/80(11.8%)	5/15(33.3%)
50-60	5/23(21.7%)	2/2(100%)
Total	21/324(6.4%)	10/76(13.1%)

been exposed to HEV. Thus, it is not possible to conclude that HEV was acquired locally. Hepatitis E is observed in young adults in our endemic regions while in industrialized countries, HEV seems to be more frequent in older adults. To characterize this epidemiological feature of HEV infection in Kerman, the data of four different age groups were analyzed: 20-30, 30-40, 40-50 and 50-60 years old of age (Figure1 and 2). Figure1 shows the prevalence of anti-HEV positivity in different age groups, and the Fig. 2 shows the frequency of this distribution. Table 1 also shows Age-specific prevalence of hepatitis E virus (HEV) IgG antibodies in subjects from rural and urban area. Thus, the probability of exposure to HEV seems to increase with age.

The overall prevalence of anti-HEV antibodies among our blood donors was 7.4%, which is generally higher than figures reported from developed countries (0.4% to 3.9%) (6, 7), and lower than those from other countries of the Eastern Mediterranean Region (52%).

The obtained value is higher than those obtained in Israel (Jews 2.81% and Arabs 1.81%) and Ankara, Turkey (3.8%), but less than studied values of Iraqis-Kurdish refugees (14.8%), blood donors in Saudi Arabia (16.4%) and general population in Pakistan (17.5%). The ratio was more or less similar to the value obtained in a group of healthy blood donors in Riyadh (8.37%) (5).

There are no published study regarding the prevalence and incidence of HEV infection in Kerman. We studied anti-HEV seropositivity in a group of healthy blood donors in Kerman and noticed a prevalence of more than 7.4%, which correlates with the prevalence of endemic areas.

Our method of screening detected anti HEV IgG, which is a routine test to detect HEV infection. No significant difference was observed in seropositivity between males and females. The lowest rate of seropositivity was observed in less than 20-30 years, and a peak level in the 30-40 years of age followed by a decline in the higher ages. Our data correlates to most other studies.

Since the HEV excretion is not usual, transmission rate and prevalence of the infection is low.

According to the results of our study we conclude that Kerman is an endemic area of type E hepatitis and we suggest further investigation since there will be higher incidence of the infection in general population particularly in rural areas.

Determination of anti-HEV in healthy blood donors is not routine now. The available kits to detect anti-HEV IgM have some limitations. Although the HEV-specific polymerase chain reaction (PCR) test is sensitive and specific, screening of the blood using PCR would not be cost-effective. In conclusion, seroprevalence of the HEV among blood donors in our study in Kerman is high, but we cannot recommend screening of all blood donors for HEV until more data becomes available and further knowledge about the mode of transmission of HEV becomes available.

References

1. Meng XJ, Wiseman B, Elvinger F, Guenette DK, Toth TE, Engle RE, et al. Prevalence of antibodies to hepatitis E virus in veterinarians working with swine and in normal blood donors in the United States and other countries. J Clin Microbiol. 2002 Jan;40(1):117-22.

[Downloaded from journal.isv.org.ir on 2026-11-11]

[DOI: 10.21859/isv.3.1.34]

2. Arankalle VA, Chadha MS, Tsarev SA, Emerson SU, Risbud AR, Banerjee K, et al. Seroepidemiology of water-borne hepatitis in India and evidence for a third enterically-transmitted hepatitis agent. Proc Natl Acad Sci U S A. 1994 Apr 12;91(8):3428-32.
3. Arankalle VA, Tsarev SA, Chadha MS, Alling DW, Emerson SU, Banerjee K, et al. Age-specific prevalence of antibodies to hepatitis A and E viruses in Pune, India, 1982 and 1992. J Infect Dis. 1995 Feb;171(2):447-50.
4. Reyes GR. Hepatitis E virus (HEV): molecular biology and emerging epidemiology. Prog Liver Dis. 1993;11:203-13.
5. Aminiafshar S, Alimagham M, Abbasi F, Fard-Khani SK. Acute interstital nephritis associated with rifampicin therapy. Saudi J Kidney Dis Transpl. 2009 Nov;20(6):1079-80.
6. Mast EE, Kuramoto IK, Favorov MO, Schoening VR, Burkholder BT, Shapiro CN, et al. Prevalence of and risk factors for antibody to hepatitis E virus seroreactivity among blood donors in Northern California. J Infect Dis. 1997 Jul;176(1):34-40.
7. Mateos ML, Camarero C, Lasa E, Teruel JL, Mir N, Baquero F. Hepatitis E virus: relevance in blood donors and risk groups. Vox Sang. 1999;76(2):78-80.

[Downloaded from journal.isv.org.ir on 2026-11-11]

[DOI: 10.21859/isv.3.1.34]