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Letter to the Editor

Hepatitis E Virus Infection in a Northern Mexican City: A Cross-Sectional Seroprevalence Study

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Dear Editor-in-Chief

Little is known about the seroepidemiology of hepatitis E virus (HEV) in the general population in Latin American countries. The seroepidemiology of HEV infection in the general population in the northern Mexican City of Durango is largely unknown.

Therefore, through a cross-sectional study design, we sought to determine: 1) the seroprevalence of anti-HEV IgG antibodies in the general population in Durango City; and 2) the risk factors associated with HEV infection in the population studied.

We studied 425 people (mean age: 35.24 ± 13.08; range: 14 to 78 yr) of the general population in Durango City; 158 were males and 267 females. We obtained the socio-demographic, housing, clinical, and behavioral characteristics of the study population. Detection of anti-HEV IgG antibodies in serum samples was performed using the commercially available enzyme immunoassay "Human hepatitis E virus antibody (IgG) ELISA kit" (Novus Biologicals. Centennial, CO. USA). This study was approved by the Ethical Committee of the Faculty of Medicine and Nutrition of the Juárez University of Durango State, Mexico.

Anti-HEV IgG antibodies were found in 19 (4.5%) of the 425 people studied. Bivariate analysis showed that HEV exposure was associated only with age (P=0.04), occupation (P=0.05), and hearing impairment. Logistic regression analysis showed that HEV exposure was associated only with increasing age (OR = 1.86; 95% CI: 1.00-3.46; P=0.04), and consumption of ostrich meat (OR = 45.59; 95% CI: 3.67-565.33; P=0.003). The 4.5% prevalence of HEV exposure found in the present study is lower than the 36.6% seroprevalence of HEV infection found in 273 adults of the rural general population in Durango State (1). However, it is comparable to the 5.7% and 6.7% seroprevalence of HEV infection reported in studies of 439 pregnant women (2), and 150 Mennonites in rural Durango State (3), respectively. In a national survey of subjects from

1 to 29 yr of age, researchers found a 10.5% seroprevalence of HEV infection (4). The seroprevalence found in the present study is comparable to seroprevalence found in open population in north-east Italy (2.6%) (5), and Tehran, Iran (9.3%) (6).

The association of HEV exposure and increasing age found in the present study is in line with results of other studies (1, 2, 7). Concerning the association between HEV exposure and consumption of ostrich meat, we are not aware of any study that had previously reported this association. HEV infects birds (8). However, infection with HEV in ostrich has not been reported. HEV exposure is associated with consumption of untreated water (9), but this factor was not associated with HEV exposure in this study. Intriguingly, we found an association between HEV exposure and hearing impairment. Studies to confirm this association are largely needed. It is possible that HEV might affect the ear as might does hepatitis B virus (10).

The seroprevalence of HEV infection in the general population of Durango City is low and comparable to those reported in general populations in Mexico and other countries. Results confirm the association between HEV exposure and increasing age. We found that new factors associated with HEV exposure that deserve further investigation.

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Conflict of interest

The authors declare that there is no conflict of interest.

References

1. Alvarado-Esquivel C, Sanchez-Anguiano LF, Hernandez-Tinoco J (2014). Seroepidemiology of hepatitis e virus infection in general population in rural Durango, Mexico. *Hepat Mon*, 14(6): e16876.
2. Alvarado-Esquivel C, Sánchez-Anguiano LF, Hernández-Tinoco J (2014). Hepatitis E virus exposure in pregnant women in rural Durango, Mexico. *Ann Hepatol*, 13(5): 510-7.
3. Alvarado-Esquivel C, Sanchez-Anguiano LF, Hernandez-Tinoco J (2015). Seroepidemiology of hepatitis e virus infection in mennonites in Mexico. *J Clin Med Res*, 7(2): 103-8.
4. Alvarez-Muñoz MT, Torres J, Damasio L, Gómez A, et al (1999). Seroepidemiology of hepatitis E virus infection in Mexican subjects 1 to 29 years of age. *Arch Med Res*, 30(3): 251-4.
5. Gessoni G, Manoni F (1996). Hepatitis E virus infection in north-east Italy: serological study in the open population and groups at risk. *J Viral Hepat*, 3(4): 197-202.
6. Mohebbi SR, Rostami Nejad M, Tahaei SM, et al (2012). Seroepidemiology of hepatitis A and E virus infections in Tehran, Iran: a population based study. *Trans R Soc Trop Med Hyg*, 106(9): 528-31.
7. Cangin C, Focht B, Harris R, Strunk JA (2019). Hepatitis E seroprevalence in the United States: Results for immunoglobulins IGG and IGM. *J Med Virol*, 91(1): 124-31.
8. Spahr C, Knauf-Witzens T, Vahlenkamp T, et al (2018). Hepatitis E virus and related viruses in wild, domestic and zoo animals: A review. *Zoonoses Public Health*, 65(1): 11-29.
9. Fenaux H, Chassaing M, Berger S, et al (2019). Transmission of hepatitis E virus by water: An issue still pending in industrialized countries. *Water Res*, 151: 144-157.
10. Tsai YT, Fang KH, Yang YH, et al (2018). Risk of developing sudden sensorineural hearing loss in patients with hepatitis B virus infection: A population-based study. *Ear Nose Throat J*, 97(10-11): E19-E27.