Surveillance of Hepatitis E virus (HEV) in swine farms and farmers and first identification of genotype 4 in Italy.

Giorgia Angeloni[1], Letizia Ceglie[1], Alda Natale[1], Isabella Monne[1], Giovanni Cattoli[1], Silvia Zamprogna[1], Alessia Schivo[1], Federica Zuliani[1], Erika Rampazzo[1], Katia Capello[1], Nadia Inglese[2], Cristiano Salata[2], Giorgio Palù[2], Lebana Bonfanti[1]

[1] Istituto Zooprofilattico Sperimentale delle Venezie, Legnaro, Italy; [2] Department of Molecular Medicine, University of Padova, Italy

Abstract

Hepatitis E is an emerging zoonotic disease caused by a positive ssRNA virus, Hepatitis E virus (HEV). In Europe, pigs are the main reservoir. Genotype 3 of HEV (HEV3) has a worldwide distribution while genotype 4 (HEV4) mostly occurs in Asia. However, HEV4 has recently been isolated in pigs and humans in Europe.

Abstract methods

During 2011-2014, a monitoring plan was performed to evaluate the prevalence of HEV infection in different human populations and pigs in Italy. Assuming an expected herd-level seroprevalence of 50%, 175 pig farms were sampled. To detect at least one positive sample assuming a within-herd seroprevalence of 30%, 9 sera were collected and analyzed from each farm. Moreover, in 105 farms HEV presence was investigated collecting 10 fecal pools. In order to understand whether consumption of pork products or/and contact with pigs may represent a risk factor, sera were collected from farmers (no.127), general population(no.131) and vegetarian/vegan group (no.114).

Abstract results

Anti-HEV antibodies were detected in 65.7% (115/175,95% CI:58.2-72.7) of farms, while viral RNA was identified in 24.8% (26/105). Most of the identified strains belonged to HEV3. However, in one farm HEV4 was detected. HEV seroprevalence in humans was significantly different among the 3 groups ($p<0.001$): farmers showing the greatest prevalence (15.75%,95% CI:9.9-23.3) and general population the lowest (2.3%,95% CI:0.5-6.5). No significant differences were found between general population (omnivorous) and vegetarian/vegan group.

Abstract conclusion

The survey confirmed a wide spread of HEV in Italian pig herds. The finding of HEV4 can be an issue of concern, considering that it may cause a more severe clinical course in humans. Moreover, our findings reinforce the opinion that HEV infection in industrial countries could be associated with professional activity.

Keywords: HEV, Surveillance, Zoonoses, Professional risk

PRESENTED BY: Giorgia Angeloni

ESCAIDE REFERENCE NUMBER: 20142149

Hepatitis E virus antibody prevalence in hunters from a district in Hesse, Germany, 2013.

Anika Schielke[1], Veronika Ibrahim[2], Irina Czogiel[3], Mirko Faber[4], Christina Schrader[3], Paul Dremsek[4], Rainer G. Ulrich[4], Reimar Johne[3]

[1] Robert Koch Institute, Germany; [2] Veterinary Officer of Local Authority Wetteraukreis, Friedberg, Germany; [3] Federal Institute for Risk Assessment (BfR), Berlin, Germany; [4] Friedrich-Loeffler-Institut (FLI), Greifswald-Insel Riems, Germany

Abstract

In Germany, 17% of the general population have antibodies to hepatitis E virus (HEV). Pigs and wild boars are the main animal reservoirs of HEV genotype 3. We estimated seroprevalence among hunters with contact to wild boars to identify factors that may be associated with past or present HEV infection.

Abstract methods

In 2013, the local veterinarian authority in Wetteraukreis district (Hesse) engaged hunters who provided blood specimens and completed a questionnaire collecting information on age, sex, hunting-related activities and consumption of wild boar meat. Specimens of wild boars were taken during drive hunts in this district during the season 2012/2013. All specimens were tested for HEV RNA and anti-HEV antibodies. Binomial regression with logarithmic link was used to estimate prevalence ratios (PR).

Abstract results

Of 126 hunters (median age 55; 94% male) 21% tested positive for anti-HEV antibodies (95% confidence interval [CI] 13-28%). In the south-western part of the district, where wild boars had most acute HEV infections and highest anti-HEV prevalence, hunters who frequently used gloves when disembowelling wild boars had a lower anti-HEV prevalence (age-adjusted PR 0.12; 95% CI 0.02-0.86).

Abstract conclusion

Hunters may benefit from barrier protection, including wearing gloves when in contact with blood or body fluids of HEV animal reservoirs. Anti-HEV prevalence among these hunters did not significantly differ from the general population suggesting that other factors play a major role in the epidemiology of HEV in Germany.

Keywords: Hepatitis E virus, seroprevalence, wild boars, protective gloves

PRESENTED BY: Anika Schielke

ESCAIDE REFERENCE NUMBER: 20141957