

Research program IZS VE 14/15

Hepatitis E virus in large game in North-east Italy: epidemiology in game populations and risk assessment at the wildlife-livestock-human interface

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Hepatitis E Virus (HEV) is a significant public health concern in developing countries, but autochthonous cases are increasingly being reported outside the endemic foci, mainly caused by HEV genotype G3, which is prevalent in swine. Research provided evidence for the significance of HEV as an emerging zoonosis in industrialized countries, with pigs being the main recognized reservoir. Human HEV infection is associated not only with consumption of raw or undercooked pork, but also of wild boar and deer. Hunting/slaughtering practices are also potential HEV transmission routes to humans.

In North-East Italy, HEV is widespread in domestic swine, with 65.7% of swine farms having serological evidence of the virus presence. Moreover, contact between domestic swine (or their waste) and wildlife is not negligible. HEV circulation in European wild boars has been claimed, but empirical data are scarce and vary greatly according to sampling time and place, limiting our understanding of HEV infection levels, circulating genotypes and transmission dynamics at the livestock-wildlife interface.

Data are needed to elucidate HEV epidemiology in wildlife, including the potential risks for human health related to hunting practices, occupational exposure (rangers, butchers, etc.) and game meat preparation/consumption. This is even more relevant in the light of the recent report of HEV G4 – which causes more severe human disease than G3 – in Italian pigs. Investigations should target swine-rich areas, but also areas with abundant wildlife populations and growing game meat retail/production activities.

Given the above, this project aims at:

- Determining HEV prevalence and spatial distribution in wild boar (*Sus scrofa*) and deer (red deer - *Cervus elaphus* and roe deer - *Capreolus capreolus*) in North-East Italy
- Characterizing HEV genotypes in wildlife and comparing them to those found in domestic animals
- Identifying factors associated with HEV presence (e.g. density of swine farms, landscape structure, etc.)
- Assessing the risk of human HEV infection from wild large game