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High prevalence of hepatitis E virus (HEV)-specific antibodies in German domestic pigs and in persons with direct contact to pigs – a comprehensive serosurvey

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An increasing number of autochthonous HEV infections has been reported for Germany. These cases are attributed to zoonotic transmission of HEV. Pig, wild boar, but also other mammals are considered sources of infection. However, the true prevalence of HEV-specific antibodies in German domestic pig herds as well as in humans with occupational exposure to them is not known. This study included 2,273 pig sera collected from almost all German federal states in 2011 as well as 537 sera from humans living in areas of Germany with a high pig-density. Application of HEV IgG-specific assays revealed a total seropositivity of 47.0% in pigs and of 13.8% in humans. HEV serostatus of pigs differed in relation to the geographic origin and the pigs' age: while 38.6% of fattening pigs (307/796) presented HEV-specific antibodies, 51.6% of sows (762/1,477) exhibited HEV-specific antibodies. 17.9% (54/302) of humans with occupational exposure to pigs exhibited IgG antibodies against HEV compared to 8.5% (20/235) in humans without direct exposure to pigs. In particular, young individuals (<40 years) with occupational exposure to pigs exhibited a significantly higher proportion of HEV-specific antibodies compared to young non-exposed individuals. HEV seroprevalence continuously increased with age. HEV genotype 3 RNA with high sequence identity to isolates from German wild boars and pigs was detected in 1/80 analyzed human sera. The data clearly demonstrate that a high percentage of German domestic pigs had contact to HEV. Thus, pigs probably represent the most important reservoir for human HEV infection in Germany. In addition to the consumption of raw or undercooked meat, direct contact to pigs has to be considered as another risk factor for HEV infection.

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