One in seven Norwegians is infected, but little is being done to prevent it.

Hepatitis E – a neglected disease in Norway

Hepatitis E is a major global public health problem. Each year, at least 20 million people are infected, more than three million become ill (1) and around 50 000 die (2).

The existence of a new virus with many of the epidemiological and clinical characteristics of the hepatitis A virus was first suggested following a waterborne outbreak in the Kashmir valley in India in 1978 (3). A few years later, the Soviet doctor Mikhail S. Balayan demonstrated a faecal-oral infection route by drinking a faecal extract from infected soldiers in a military camp in Afghanistan. One month later, he experienced stomach pains and vomiting, followed by fever and jaundice, and the research team found virus-like particles in his faeces (4). In 1990 this new virus was cloned, sequenced and given the name hepatitis E virus (5).

Today we know that at least four types of hepatitis E virus exist. Genotypes 1 and 2 only infect humans and cause epidemics and sporadic cases in developing countries, primarily via polluted drinking water. With few exceptions the illness is self-limiting and benign in otherwise healthy patients, but pregnant women have a reported mortality rate of 15–25 % in the third trimester (6). In patients with chronic liver disease, superinfection with hepatitis E virus can produce decompensated liver failure and death (7).

Hepatitis E virus genotypes 3 and 4 are zoonotic viruses. These produce sporadic disease in humans and can also cause outbreaks in industrialised countries. Infection probably occurs mainly through animal food products that are insufficiently heat-treated, for example meat from pigs, wild boar and deer (8). The virus may also potentially be transmitted through blood transfusion (9). Infection with genotype 3 is usually asymptomatic, but acute hepatitis and extrahepatic manifestations occur. Chronic hepatitis E has been described in patients with immunological failure, particularly in the case of organ transplant patients (10).

Until recently, hepatitis E was perceived as a rarely imported disease in Norway (11). However, in recent years there have been reports from many European countries of a high seroprevalence and cases of genotype 3 disease, for example from Denmark and Sweden (12). In Norway, antibodies against hepatitis E have been found in 14 % of Norwegian blood donors (13) and in more than 75 % of pigs tested (14). Hepatitis E virus was detected in 8 % of samples from sewage treatment plants, primarily genotype 3, which is similar to the virus found in pigs (15). In this issue of the Journal of the Norwegian Medical Association, Alexander Løvdahl & Joakim Øverbø report on the first case of acute hepatitis E following infection in Norway (16). Insufficient knowledge about the disease makes it highly probable that many cases are wrongly diagnosed, for example as toxic hepatitis.

Hepatitis E has been given low priority by the Norwegian health authorities, and we know too little about its prevalence and significance in this country. The disease is not monitored by the Norwegian Surveillance System for Communicable Diseases, and the risk of transmission via blood transfusion is inadequately assessed. The *National strategy to combat viral liver infections (hepatitis)* devotes little attention to hepatitis E – apart from pointing out that the Norwegian Food Safety Authority must help to increase knowledge of food products that can spread hepatitis E infection (17). This makes an important contribution, but it fails to indicate any drive to enhance knowledge about the significance of the disease here in Norway.

Arne Broch Brantsæter
arne.broch.brantsaeter@ous-hf.no

Arne Broch Brantsæter (born 1959), senior consultant in the Department of Infectious Diseases, Oslo University Hospital and the Norwegian National Unit for CBRNE Medicine.
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References

1. Rein DB, Stevens GA, Theaker J et al. The global burden of hepatitis E virus genotypes 1 and 2 in 2005. Hepatology 2012; 55: 988–97.
2. GBD 2013 Mortality and Causes of Death Collaborators. Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet 2015; 385: 117–71.
3. Khuroo MS. Study of an epidemic of non-A, non-B hepatitis. Possibility of another human hepatitis virus distinct from post-transfusion non-A, non-B type. Am J Med 1980; 68: 818–24.
4. Balayan MS, Andjaparidze AG, Savinskaya SS et al. Evidence for a virus in non-A, non-B hepatitis transmitted via the fecal-oral route. Intervirology 1983; 20: 23–31.
5. Reyes GR, Purdy MA, Kim JP et al. Isolation of a cDNA from the virus responsible for enterically transmitted non-A, non-B hepatitis. Science 1990; 247: 1335–9.
6. Khuroo MS, Teli MR, Skidmore S et al. Incidence and severity of viral hepatitis in pregnancy. Am J Med 1981; 70: 252–5.
7. Hamid SS, Atiq M, Shehzad F et al. Hepatitis E virus superinfection in patients with chronic liver disease. Hepatology 2002; 36: 474–8.
8. Guillois Y, Abravanel F, Miura T et al. High Proportion of Asymptomatic Infections in an Outbreak of Hepatitis E Associated With a Spit-Roasted Piglet, France, 2013. Clin Infect Dis 2016; 62: 351–7.
9. Vollmer T, Diekmann J, Eberhardt M et al. Hepatitis E in blood donors: investigation of the natural course of asymptomatic infection, Germany, 2011. Euro Surveill 2016; 21: 30332.
10. Kamar N, Selves J, Mansuy JM et al. Hepatitis E virus and chronic hepatitis in organ-transplant recipients. N Engl J Med 2008; 358: 811–7.
11. Sarvari SI, Hoddevik G, Brantsaeter AB. Akutt hepatitt E. Tidsskr Nor Lægeforen 2007; 127: 1966–8.
12. Norder H, Sundqvist L, Magnusson L et al. Endemic hepatitis E in two Nordic countries. Euro Surveill 2009; 14: 19211.
13. Referansegruppen for ekstern kvalitetssikring i virologi og serologi. Strategimøte 2015. Laboratoriediagnostikk ved nye og utbruddsaktuelle virusinfeksjoner. Oslo: Nasjonalt folkehelseinstitutt, 2016. www.fhi.no/publ/strategimoter/strategimote-2015/ (21.9.2016).
14. Veterinærinstituttets rapportserie 11–2014. Veterinærinstituttets faglige aktivitetsrapport 2013. Oslo: Veterinærinstituttet, 2014. http://vetinst.prod1.seeds.no/Publikasjoner/Rapportserie/Rapportserie-2014/Veterinaerinstituttets-faglige-aktivitetsrapport-2013 (21.9.2016).
15. Myrmel M, Lange H, Rimstad E. A 1-Year Quantitative Survey of Noro-, Adeno-, Human Boca-, and Hepatitis E Viruses in Raw and Secondarily Treated Sewage from Two Plants in Norway. Food Environ Virol 2015; 7: 213–23.
16. Løvdahl A, Øverbø J. En pasient i 20-årene med icterus og smerter i ledd og muskler. Tidsskr Nor Legeforen 2016; 136: 1651–2.
17. Helse- og omsorgsdepartementet. Nasjonal strategi for arbeidet mot virale leverbetennelser (hepatitter). 2016. www.regjeringen.no/no/dokumenter/nasjonal-strategi-for-arbeidet-mot-virale-leverbetennelser-hepatitter/id2504728/ (21.9.2016).