Medical Xpress

Should we be worried about hepatitis E?

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Hepatitis E gets little press compared to its better-known cousins A, B and C, but Stellenbosch University virologists say we should wake up to how transmission of this virus is changing. World Hepatitis Day is commemorated on 28 July.

Hepatitis E virus infection (HEV) is the most common cause of acute viral hepatitis worldwide. The infection usually resolves within weeks, but sometimes it causes acute liver failure, which may be fatal. It is mostly spread through the faecal-oral route, and until recently was viewed as an infection primarily affecting people in undeveloped areas who lack access to clean water and good sanitation.

That picture is starting to change, however. Scientists have begun noticing a shift from hepatitis E as only a disease of the poor, to one that can also affect affluent people in developed world settings. The transmission mechanism appears to be changing: HEV is re-emerging as a zoonotic virus. In developed countries, doctors used to see HEV in travellers returning from endemic areas. Now, however, people are acquiring the infection from pigs and pork products (via ingesting the meat or faecal contamination) in countries like the United Kingdom and France.

Dr Tongai Maponga, a post-doctoral fellow in the Division of Medical Virology at Stellenbosch University (SU), has a particular interest in viral hepatitis, and belongs to a group of researchers at SU that described the first case of chronic HEV infection in an HIV-infected patient in South Africa.

He says: "HEV has the potential to become a chronic infection, especially in immunosuppressed patients. This is a risk in South Africa, where there are many HIV-infected patients.

"We described the first HIV patient with chronic HEV in 2012. After starting antiretroviral therapy, he had elevated liver enzymes (which indicates liver disease). More obvious potential causes for this were considered; it was only after about a year that we thought to test for HEV.

"Also interesting was the HEV genotype (genetic variant) present. Hepatitis E as a disease of the poor is normally associated with genotypes 1 and 2, but this patient was infected with genotype 3, which is also the genotype that circulates in pigs, thus indicating zoonotic transmission.

"We've subsequently seen about four more cases of HEV infection. This may seem a small number but it could mean the problem is becoming more prevalent in the larger community."

Transplant patients are also at risk for chronic infection, as they receive immunosuppressive therapy to minimise graft rejection. In 2015 the SU researchers described the first case of HEV infection with genotype 3 in a kidney transplant patient, some months after transplantation.

Says Maponga: "Before transplant operations, patients are screened for the obvious hepatitis viruses like B and C, but people tend not to consider HEV, so it can go undiagnosed and unsuspected. There are now several other cases described in the literature. In one study in Asia, a liver transplant patient with continuously elevated liver enzymes was found to have picked up HEV from a camel."

Another study published in early 2017 investigated HEV infection

among blood donors in the Western Cape.

"We found antibodies that showed some donors had been exposed to HEV," says Maponga, "but thankfully we didn't see the actual viral nucleic acids or the antigen that would indicate they are infected."

This study showed a difference in seroprevalence between the hepatitis A virus and HEV. Hepatitis A is spread through the faecal-oral route; if HEV is spread predominantly through the same mechanism, their prevalences would be expected to mirror each other. However, this was not found to be so - HEV prevalence was lower. Also, HEV seroprevalence differed according to race group: it was highest in mixed race donors and lowest in black donors. This may reflect that groups with higher socio-economic status and meat consumption levels have higher HEV prevalence.

Collaborative work with the University of Cape Town, which involved testing 16 commercial pig herds that supply pork to Cape Town, found evidence that animals on all these farms had been exposed to or infected with HEV.

"If some of our pigs have HEV there's the risk pork consumers might get infected. We're not saying people shouldn't eat pork, but farmers must look after the pigs and ensure these viruses don't end up in the food supply. They must also prevent environmental contamination: you don't want sewage runoff from piggeries entering water sources. This would be a worry in poorer areas, where people might get drinking water from the river."

Complicating the picture further is the fact that HEV is not limited to pigs as hosts. Meat from wild boar and other game animals may also be tainted with the virus, as may seafood items. However, the range of possible hosts has not been fully described; identifying these is an

important area of ongoing HEV research.

Provided by Stellenbosch University