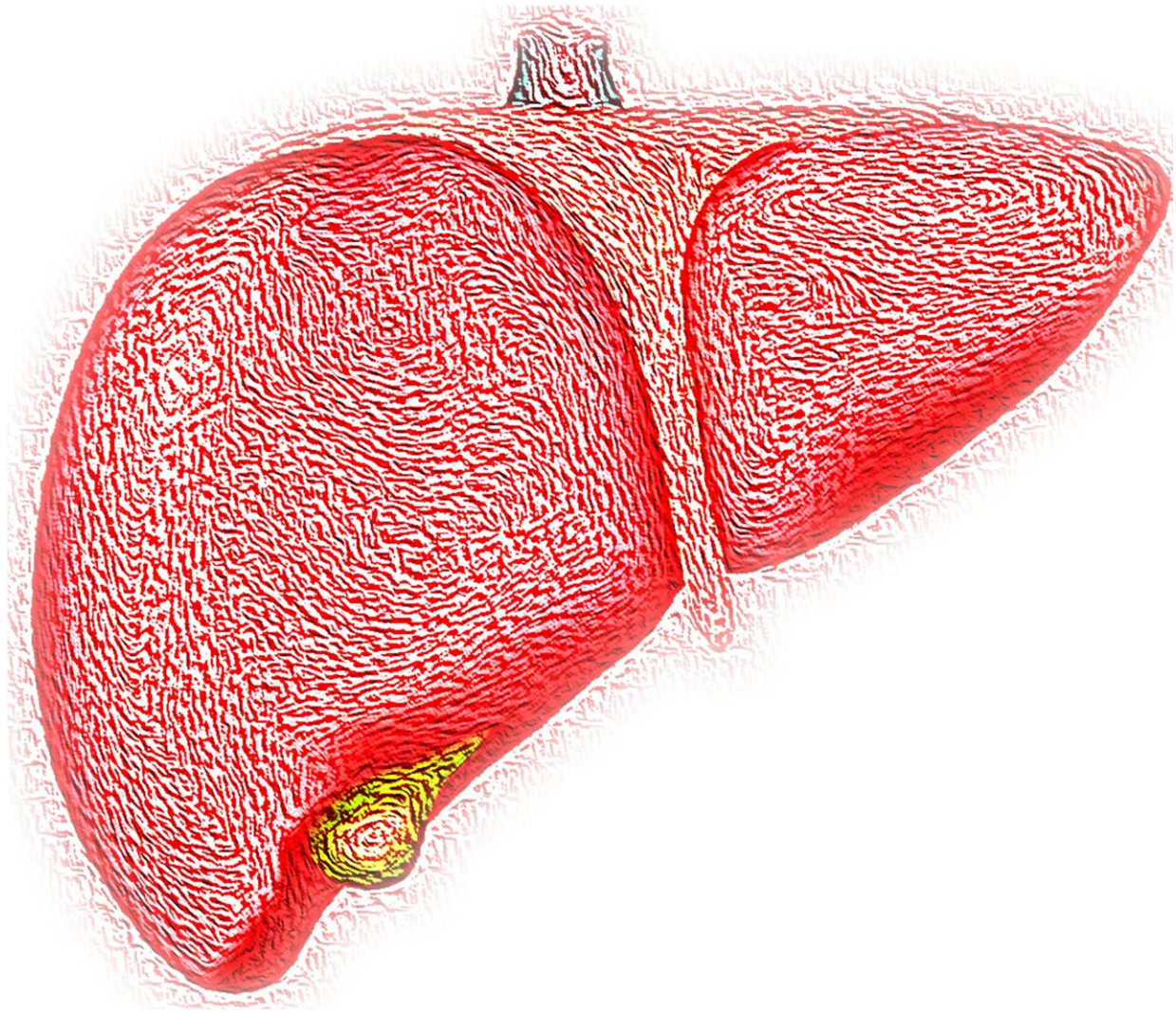
Medical Xpress

Study shows Indigenous patients with autoimmune liver disease face worse symptoms and outcomes

February 3 2023, by Gillian Rutherford



Credit: Pixabay/CC0 Public Domain

First Nations, Métis and Inuit people with primary biliary cholangitis—a debilitating autoimmune liver disease—have more advanced symptoms at diagnosis and worse long-term outcomes than others in Canada, according to research from a nationwide monitoring project.

"This autoimmune liver disease joins the collection of other autoimmune diseases with increased frequency and severity in Indigenous peoples, including multiple sclerosis, rheumatoid arthritis and systemic lupus erythematosus," says co-lead author Andrew Mason, hepatologist and professor in the Faculty of Medicine & Dentistry.

"The cause for the increased severity of disease is not clear," says Mason, who is the Western Canada project lead for the Canadian Network for Autoimmune Liver Disease, which pools data about patients with the relatively rare diseases of primary biliary cholangitis, autoimmune hepatitis and overlap syndrome.

Primary biliary cholangitis is a chronic illness in which the immune system misfires and attacks the bile ducts in the liver, slowly destroying them. It affects an estimated 318 people per million in Canada. Nine out of 10 patients are female, according to the Canadian Liver Foundation. Early symptoms include fatigue and itchiness, with abdominal pain, swelling, jaundice and other symptoms developing later. There is no cure for the disease, although treatments can slow its progression. Some patients eventually experience liver failure and require a transplant.

For their study published in *Hepatology*, the researchers examined

medical records for 1,538 patients from six cities across the country.

They found that Indigenous patients were more likely to have developed complications such as deteriorated liver function or liver cancer before diagnosis than new patients from other population groups, even though they were diagnosed at about the same age. Indigenous patients also had persistently poorer results on blood tests even after treatment.

In search of the cause and better treatments

Mason, who is also a member of the Li Ka Shing Institute of Virology, notes that primary biliary cholangitis can be hard to diagnose because it mimics other liver conditions. As with other autoimmune disorders, it appears that a combination of factors may lead to the disease, including an underlying genetic risk and environmental triggers such as infection or hormones.

"The link with worse disease in Indigenous populations may be related to an increased genetic risk compared with other Canadians," Mason says.

Along with caring for patients with liver disease, Mason has devoted much of his research career to examining one of those potential environmental factors—a human betaretrovirus that is very similar to the mouse mammary tumor virus, known to cause cancer and linked with autoimmune biliary disease in mice. The human virus has been found in patients who have breast cancer, lymphoma and primary biliary cholangitis, but no causal link has been confirmed. Mason recently wrote a book chapter and edited a special issue of the academic journal *Viruses* exploring the controversy surrounding the virus.

Mason says the next step for his own lab's research is to refine a blood test they have developed to more easily detect the human betaretrovirus in patients. He reports that some primary biliary cholangitis patients get

symptom and liver test improvement from long-term use of repurposed antiviral drugs originally developed for HIV/AIDS, particularly with the fatigue associated with the disease, indicating a possible viral link.

More information: Surain B. Roberts et al, Ethnicity, disease severity, and survival in Canadian patients with primary biliary cholangitis, *Hepatology* (2022). DOI: 10.1002/hep.32426

Provided by University of Alberta