Curing hepatitis C will create transplant opportunities for patients with other illnesses

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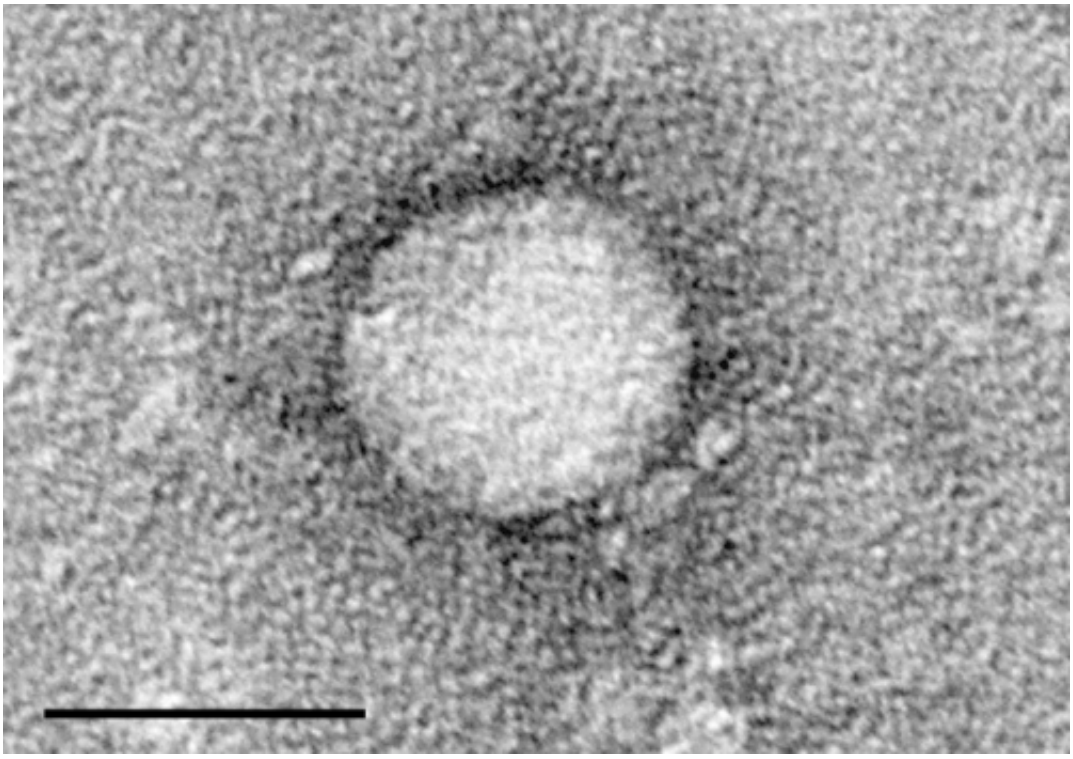

Electron micrographs of hepatitis C virus purified from cell culture. Scale bar is 50 nanometers. Credit: Center for the Study of Hepatitis C, The Rockefeller University.

Recently developed treatments that cure hepatitis C virus (HCV) will create new opportunities for people with other liver diseases to receive transplanted livers.

Only one-third of Americans who need liver transplants receive them, and shortages are expected to rise as the transplant waiting list continues to grow while the supply of organs remains flat. The research suggests that the benefits of new HCV treatments could spill over to many other diseases that cause end-stage liver failure.

The findings, from a study led by researchers at Harvard Medical School, are published May 3 in the *American Journal of Managed Care*.

In the United States, the most common reason for needing a liver transplant is cirrhosis caused by HCV, followed by cirrhosis from long-term alcohol use. Other reasons include nonalcoholic fatty liver disease, other forms of chronic hepatitis, genetic forms of liver disease and acute liver failure from drugs such as acetaminophen (Tylenol).

"The inadequate supply of liver donors in the United States is a real problem," said Anupam Jena, associate professor of health care policy at Harvard Medical School and an internist at Massachusetts General Hospital, who led the research. "People die every day of liver disease because a suitable organ never materializes. By curing patients of HCV before they become sick enough to need a new liver, new HCV drugs shorten the waiting lists and make more livers available to patients with other illnesses."

Jena and his colleagues at the Leonard D. Schaeffer Center for Health Policy and Economics at the University of Southern California, Precision Health Economics and the University of Chicago developed an epidemiologic-economic model that combined data on trends in chronic liver disease with liver transplant allocation models to estimate the potential effects of systematic HCV screening and treatment on the demand for liver transplants in the United States.

The researchers found that systematic HCV screening and treatment

would not only reduce rates of end-stage liver disease due to HCV infection but would also spare approximately 10,500 livers from being transplanted into HCV-infected patients over a twenty-year period (2015-2035). An estimated 7,300 of these livers would be transplanted into liver disease patients without HCV. The remaining 3,200 livers would be transplanted into people who were not screened for HCV or who have HCV but did not respond to existing therapies.

The study has implications for a broad range of diseases aside from liver disease, said study co-author Darius Lakdawalla, Quintiles Chair in Pharmaceutical Development and Regulatory Innovation at the University of Southern California.

"For any disease in which organ transplants are in short supply, our study suggests a novel pathway by which treatment of a single disease may save lives of those with other diseases by sparing organs for transplant," Lakdawalla said.

For example, he said, improvements in coronary artery disease management will mean that people with heart failure arising from this condition will require fewer heart transplants in the future; those hearts will be spared and can be transplanted into people with other forms of heart failure.

But not all spillovers are benefits.

The study also highlighted how increasing rates of diseases such as diabetes and hypertension may have unintended consequences for patients with other diseases. By raising the demand for kidney transplants due to end-stage kidney disease, for example, both diabetes and hypertension crowd out transplant opportunities for patients with other forms of end-stage kidney disease.

Provided by Harvard Medical School