

# Mouth, as well as gut, could hold key to liver disease flare-ups

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In a recent study, Virginia Commonwealth University School of Medicine researchers predicted which cirrhosis patients would suffer inflammations and require hospitalization by analyzing their saliva, revealing a new target for research into a disease that accounts for more than 30,000 deaths in the United States each year.

The findings could trigger a change in the way researchers study [chronic liver disease](#) and associated microbiota, the network of tiny organisms in the human body such as bacteria and fungi that can either bolster an immune system or weaken it.

The breakdown of defenses in the mucosa of the [gut](#) has long been a signal of [inflammation](#) in those with [cirrhosis](#), which sees healthy liver tissue replaced by scar tissue.

The recent findings suggest that another part of the body also can produce warning signs.

"It has been believed that most of the pathogenesis of cirrhosis starts in the gut, which is what makes this discovery so fascinating," said Jasmohan S. Bajaj, M.D., associate professor of hepatology in the VCU School of Medicine and Hunter Holmes McGuire Veterans Affairs Medical Center. "The fact that saliva, along with fluid in the gut, can be an indicator of inflammation tells us that we need to further explore the oral cavity and its connections to liver disease."

Bajaj is the senior author of a paper, "Salivary Microbiota Reflects Changes in Gut Microbiota in Cirrhosis with Hepatic Encephalopathy," accepted March 29 for publication in the journal *Hepatology*.

The paper describes a study of more than 100 cirrhosis patients from VCU and VA Medical Center, 38 of which had to be hospitalized within 90 days because of flare-ups. Researchers found that the ratio of good-to-bad microbes was similar in the saliva as in the stool of these patients who required hospitalization.

Another part of the same study looked at an additional group of more than 80 people with and without cirrhosis. Those with cirrhosis had impaired salivary defenses, mirroring the immune deficiencies that take place in the gut.

"The data suggest that there may be a change in the overall mucosal-immune interface in cirrhosis patients, allowing a more toxic microbiota to emerge in both the gut and oral cavity," said Phillip B. Hylemon, Ph.D., professor of microbiology and immunology in the VCU School of Medicine and co-author of the paper.

In addition to using oral microbiota to predict the disease status of cirrhosis patients, Hylemon said the new evidence could provide a useful tool for testing treatment protocols for patients with cirrhosis or other diseases driven by inflammation.

**More information:** "Salivary Microbiota Reflects Changes in Gut Microbiota in Cirrhosis with Hepatic Encephalopathy," *Hepatology*. DOI: 10.1002/hep.27819

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