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# Altered microbiome linked to liver disease in adolescents with cystic fibrosis

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A professor at the University of Colorado School of Medicine at the Anschutz Medical Campus and his colleagues have found a possible cause of liver disease in adolescents with cystic fibrosis.

In a research article published in the journal *PLOS One*, Michael Narkewicz, MD, professor of pediatrics, and his co-authors studied adolescents with cystic fibrosis and cirrhosis and compared them to adolescents with cystic fibrosis and no liver disease.

They found that those with liver disease had a different microbiome (gut bacteria), slower small bowel motility and more signs of small bowel inflammation compared to those without liver disease. This suggests that there is an interaction between the gut bacteria in cystic fibrosis and the liver that may lead to liver disease. The finding is important because it points to potential targets for therapy by suggesting specific reasons that some adolescents with cystic fibrosis develop advanced liver disease.

Cystic fibrosis is a life-threatening genetic disease that primarily affects the lungs and digestive system. An estimated 30,000 children and adults in the United States have cystic fibrosis. Cirrhosis occurs in 5 percent to 7 percent of cystic fibrosis patients. Cirrhosis is a slowly progressing disease in which healthy liver tissue is replaced with scar tissue, eventually preventing the liver from functioning properly.

"While some intestinal symptoms are common in all cystic fibrosis patients," Narkewicz said, "we found there are some who have

disturbances in intestinal function combined with changes in the gut microbiome that may contribute to liver disease. We hope this finding will point toward a better understanding of why only 5 to 7 percent of cystic fibrosis patients develop severe liver disease and will suggest potential therapies to help those patients."

Provided by University of Colorado Denver